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Birdwing Butterflies NOVA, Part I (Lepidoptera, Papilionidae, Troidini)

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new form;
new locality;
unknown females;
Indonesia.

Abstract. – Description of new taxa from Indonesia: *Troides* (*T.*) *helena usmani* **ssp**. **nov**. and *karamianensis* ♀ **f**. **nov**. Karamian Island; *T. h. helena dea* ♀ **f**. **nov**. Bali and Java Islands; *Ornithoptera* (*O.*) *c. croesus* Wallace, 1859, *nobesi* **f**. **loc**. **nov**. islands of Kayoa and *laantoni* **f**. **loc**. **nov**. Muari Island; *O.* (*O.*) *priamus hecuba watubelaensis* **f**. **loc**. **nov**., Watubela Island and *O.* (*O.*) *priamus poseidon* f. loc. *aureus* Parrott, 1987 *madrinneae* ♀ **f**. **nov**., Arfak, Irian Jaya. In addition, descriptions of two unknown ♀: *O.* (*Schoenbergia*) *paradisea arfakensis* f. loc. *orientalis* Dufek & Schäffler, 2006 and *p. paradisea* f. loc. *kotaseaoe* Dufek & Schäffler, 2006. Finally, Kayoa Island is a new locality for species *T. criton* Felder, 1860.

Deslisle G., 2026. – Birdwing Butterflies NOVA, Part I (Lepidoptera, Papilionidae, Troidini). *Faunitaxys*, 14(03) : 1 – 51.

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Introduction

Two trips to Indonesia led to this publication describing new taxa. Roch Defayette an insect collector and judoka master, accompanied me, he later considered by all as “my bodyguard!” I had previously contacted La Anton and Usman Ode for the planning of the expedition. I had stopped travelling abroad since 1997 in order to dedicate myself to the book Outstanding Birdwing Butterflies, a project that took 18 years to realize.

In 2016, Anton offered to my colleague Jean-Pierre Sclavo a pair of subspecies *Ornithoptera c. croesus* from Kayoa, an island not known as a habitat for this species. Knowing my keen interest in studying this type of material, Sclavo sent me a photo, giving me free rein to describe and publish it. Examination of the photographs revealed it to be a new local form of subspecies *c. croesus*. This, of course, revived in me the irresistible desire to return to Indonesia. This time, the exploration would take place on Kayoa Island in the Moluccas archipelago, Indonesia.

Anton offering online specimens of *c. croesus* from Kayoa Island, sparked my desire to acquire some specimens with CITES permits. Furthermore, the possibility of exploring the island with him to discover this particular habitat began to take root. We had met in Bali in 1990 when he had invited me to his Birdwing Butterflies farm on Ambon Island, we had developed mutual trust and consequently he readily accepted my proposal to go to Kayoa. In 1991 he had provided me with the material that allowed me to publish *O. c. croesus wallacei* from Mandioli Island.

2018. From 14 April to 14 May, we were in Indonesia. From Bali, Roch and I flew to Buton Island, where Anton lives. From his inventory of Birdwing Butterflies, I first selected the *croesus* from Kayoa Island for study. The specimens been bred in Bacan from the eggs of a female brought from her place of origin, Kayoa Island.

Once the selection over, Anton and I headed for the port of Bacan to catch the boat for Kayoa Island. After transiting in Makassar, on Celebes Island, and a stopover on Ternate Island, we finally set foot on Kayoa. The perilous climbs and descents through the Tigalalu and Jojaru mountains did not allow us to see any specimens of *croesus*; only a pair of *Troides c. criton* were seen. The incessant "brrrr" of chainsaws drowned out the melodious sounds of birds. The stark reality of the lack of food plants was deplorable. In my humble opinion, everything suggested that the local population of *croesus* was threatened; for islands as small as this one, it is essential that the rate of deforestation be strictly controlled. Ideally, a reserve should be created to protect at least part of the *croesus* habitat. Therein lies the miracle solution that could ensure the survival of *croesus* and *criton*. The extinct subspecies *O. priamus gorongensis* remains a striking example!

2019. At around the same time of the year, once again, my travel companion Roch Defayette and I am in Bali. On April 16th, Usman Ode, despite being grieving the recent loss of his wife, proudly showed me the discovery of a new island population of species *T. helena*. Never before exploring, the island, lost in the vast Java Sea, is barely visible on a map. As the discoverer, he wished that the new subspecies named after him. Personally, I was proud that Usman Ode chose me as the author, thus acknowledging my expertise, I named it *T. helena usmani* **nov**.

"Much to my dismay", after being told numerous times that the parcel was soon to be sent, without any result, I finally received my specimens legally on January 13, 2025, **six years and eight months later!!!** After all those years, I had lost hope of ever receiving the parcel. What caused this endless delay was that CITES permits suspended due to irregularities on the part of license holders and for political reasons. Furthermore, Anton took this opportunity to send me other specimens he was holding pending the lifting of the ban, from two new locations: Muari Island for *croesus* and Watubela Island for species *O. priamus hecuba*.

During the 2018 and 2019 expeditions, we also visited Ceram Island (Saleman) to observe *O. goliath procus*, whose female is the largest butterfly in Indonesia, as well as *O. p. priamus*, *T. h. hypolitus* and *T.*

Reviewer :
Takashi Ohya (*Himehama, Toyohama, Kanonji, Kagawa, Japan*)

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o. oblongomacualtus. Furthermore, Hiromi Detani had planned an expedition for us to Timika, in Irian Jaya, for *O. priamus poseidon*, *O. paradisea detanii* and *O. meridionalis*.

Collection abbreviations

IMQC: Insectarium de Montréal, Québec, Canada
PD: Pablo Deslisle, St-Raymond, Québec, Canada
PF: Philippe Fol, Montréal, Québec, Canada
RD: Roch Defayette, Gatineau, Québec, Canada
GN: Greg Nobes, Gosport, England
MB: Marcel van Bijnen, Waalwijk, Netherlands

Descriptions

***Troides* (*T.*) *helena usmani* ssp. nov.**
(Fig. 2a-b)
ZooBank : https://zoobank.org/A2E28928-B7FA-41D6-AD8C-0CE7ACD17859

Holotype, ♂, Karamian Island, Indonesia, March 6, 2019, Usman Ode, IMQC.

Paratypes, **24** ♂ & **16** ♀, Karamian Island, Indonesia, March 2-9, 2019, Usman Ode, IMQC, PD, PF, RD.

According to Takashi Ohya, the species *Troides* (*T.*) *helena* (Linnaeus, 1758) has 24 subspecies. Its distribution ranges widely from northeast India, covering all of Southeast Asia, through southwest China east to Sulawesi Island, Indonesia. The larval food plant are *Aristolachia tagala* Cham. and *A. foveolata* Merr.

In 2019, Indonesian Usman Ode embarked on an exploration of the remote and unexplored island of Karamian, home to a previously unknown *Troides* butterfly. After a boat trip from Bali and stops at several islands, including Kangean, it took him two days and one night to reach Karamian. During his ten-day stay, Usman fulfilled his lifelong dream: discovering a new Birdwing Butterflies. According to Usman, there are no mountains on Karamian Island and the butterflies observed at Sudi Mampir and Alas Jaya, where coconut trees abound, fly from 8am to 2:30pm. Host plant is *Aristolachia tagala,* which thrives in a hot and humid climate.
Karamian or (Karamai) is a small island located in the Masalembu Islands, part of the Sumenep Islands in East Java, Indonesia; Karamian being an island of approximately 10.14km^2 located in the Java Sea, about 375 km (bing.com) from Bali and 100 km from the coast of Borneo. Coordinates: Latitude 5°4′17″ South (or approximately -5.07139°), Longitude 114°35′56″ East (or approximately 114.59889° (en. wikipedia.org). (Fig. 1a-b).
The description of this new subspecies is based on two closely related subspecies *T. helena antileuca* Rothschild, 1908 from Kangean Island which is located at about 240 km southeast of Karamian Island and *T. helena nereides* Fruhstorfer, 1906, from Baewan Island located at about 240 km southwest of Karamian.

Fig. 2a-b. *T. helena usmani* **ssp. nov.**, holotype ♂, (wingspan 10.5 cm), Karamian Island, Indonesia. **a**. Dorsal face. **b**. Ventral face.

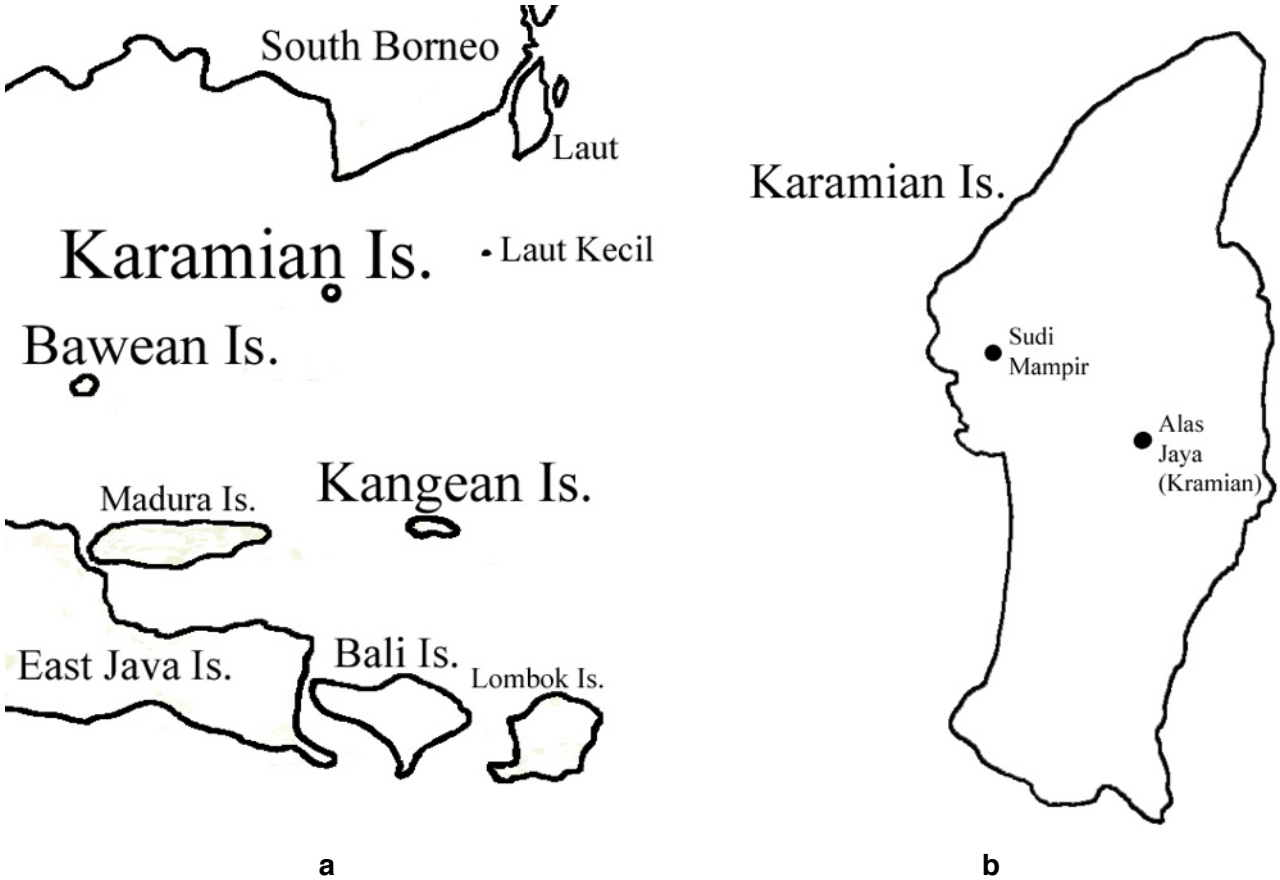

Fig. 1a-b. Karamian Island, Indonesia.
a. Location. **b**. Indication of the two spots from which Usman observed the butterflies.

Description of the holotype

Wingspan. – 10.5 cm, forewing length 6.8 cm.

Forewing dorsal face. – Dark brown background colour. Faintly visible pale streaks.

Forewing ventral face. – Whitish pale streaks along veins 5 (M2) to 3 (Cu1).

Hindwing dorsal face. – Black costal space. Subapical golden spot absent in black basal space. 1 to 6 golden spaces without black dots. Deeply undulated marginal band.

Hindwing ventral face. – Subapical small translucent golden spot in basal space.

Paratypes, ♂, variations

Wingspan. – 9.5 to 11.5 cm, length of forewing from 6.5 to 7.0 cm.

Forewing dorsal face. – Similar to holotype.

Forewing ventral face. – Half of the specimens with a background color noticeably paler than on hindwings. Pale streaks slightly variable in number and intensity.

Hindwing dorsal face.
- Absence or presence of subdiscal black spots as follows (Fig. 3a-e).

Fig. **3a-e**. *T. helena usmani* **ssp**. **nov**. Karamian Island, Indonesia. **a-c**. Without subdiscal black spots. **d**. One subdiscal black spot present in space 2. **e**. Three vestigial subdiscal spots visible from spaces 3 to 5, ventral face view.

- Eighteen specimens without subdiscal black spots.
- Seven specimens with one subdiscal black spot; one specimen has a spot on the right side only (Fig 3a).
- One specimen with three vestigial spots in spaces 3 to 5 (Fig. 3e).

Hindwing ventral face. – Similar to holotype.

Paratype, ♀, *typical dark form* (Fig. 4a-b).

Fig. **4a-b**. *T. helena usmani* **ssp**. **nov**. typical dark form paratype ♀ (wingspan 12.5 cm), Karamian Island, Indonesia. **a**. Dorsal face. **b**. Ventral face.

Wingspan. – 12.4 cm, forewing length 7.1 cm.

Forewing dorsal face. – Dark brown ground colour. Faint vein stripes in the median area.

Forewing ventral face. – Whitish stripes on veins 2 (Cu2) and 1b.

Hindwing dorsal face. – Dark brown background color. Dark subdiscal spots reaching the protuberances of the dark marginal band.

Hindwing ventral face. – Less deeply protruding dark marginal band, therefore not connected to the reduced subdiscal dark spots.

Other paratypes, ♀, variations

Wingspan. – 10.5 to 12.6 cm, forewing length from 6.5 to 8 cm.

Forewing dorsal face. – All specimens are similar.

Forewing ventral face. – All specimens are similar.

Hindwing dorsal face. – Reduced subdiscal dark spots on largest specimen, and not reaching the protuberances of the dark marginal band.

Hindwing ventral face. – All specimens are similar.

***Troides* (*T.*) *helena usmani* ♀ f. *karamianensis* nov.**

(Fig. 5-6)

Holotype, ♀, Karamian Island, Indonesia, March 8, 2019, Usman Ode, IMQC.

Paratypes, **10** ♀, Karamian Island, Indonesia, March 2-9, 2019, Usman Ode. IMQC, PD, PF, RD.

Fig. **5**. *T. helena usmani* **ssp**. **nov**. f. *karamianensis* **nov**. holotype ♀ (wingspan 12.8 cm), Karamian Island, Indonesia, dorsal face.

Fig. **6**. *T. helena usmani* **ssp**. **nov**. f. *karamianensis* **nov**. holotype ♀ (wingspan 12.8 cm), Karamian Island, Indonesia, ventral face.

Description of the holotype

Wingspan. – 12.8 cm, forewing length 8 cm.

Forewing dorsal face. – Brown background noticeably less dark compared to that of hindwings. – Attractive central pattern of merged pale spots contrasting on dark background; very broad median pale vein-stripes around pale cellular patch, covering a third of subapical area. – Space 1a, short and narrow pale streak centrally.

Forewing ventral face. – Pale whitish markings greatly expanded.

Hindwing dorsal face. – Significantly darker background color. – Basal space and space 6 entirely dark, as well as half of basal cell. – Dark subdiscal large spots merged with the protuberances of the broad dark marginal band.

Hindwing ventral face. – Similar to dorsal face. – Discal and submarginal coloration of a paler yellow.

Other paratypes, ♀, variations.

Wingspan. – 11.8 cm to 12.5 cm (6 specimens measuring 12.0 cm), forewing length from 7.3 to 8 cm.

Forewing dorsal face. – Three specimens similar to holotype. – Six specimens with additional pale streak above vein 1b. – One specimen with pale vein-stripes slightly shaded with dark scales. – One specimen with pale vein-stripes clearly covered by dark scales.

Forewing ventral face. – Similar to holotype.

Hindwing dorsal face. – Dark basal space. – Three specimens with reduced subdiscal dark spots not connected to protuberances of dark marginal band.

Hindwing ventral face. – Similar, with paler yellow coloration.

Remarque. – Subspecies usmani **nov**. differs from antileuca by the absence of pale streaks on veins in males, and the presence, on most, of a black spot in space 6, generally not confluent with the basal spot; also by the fact that females are limited to a single dark form. In nereides, the males generally present a more or less complete series of subdiscal black spots, and the females limited to a single pale form.
Like many other subspecies, males are less distinctive than females. Contrary to what be expected in this extremely isolated island population, the morphology in males and females greatly vary. The Karamian Island population is possibly at the origin of those on Kangean and Baewan Islands, which have respectively a dark female form and a light female form.

Etymology. – Named in honor of Usman Ode who discovered in 2019 the subspecies *T. helena usmani* **nov**.

Material type deposited in the collections

- Holotype ♂, Karamian Island, Indonesia, March 6, 2019, paratypes, idem, March 2-9, 2019, **20** ♂, **5** ♀ dark form ;
- Holotype ♀ f. *karamianensis* **nov**., idem, March 8, 2019, paratypes, idem, March 2-9, 2019, **7** ♀, Insectarium de Montréal, Québec, Canada (G. Deslisle donation).
- **1** ♂, **1** ♀ f. *karamianensis* **nov**. in coll. Roch Defayette,
- **1** ♂, **1** ♀ f. *karamianensis* **nov**. in coll. Pablo Deslisle,
- **1** ♂, **1** ♀ dark form, **1** ♀ f. *karamianensis* **nov**., in coll. Philippe Fol.

All specimens from Karamian Island, Indonesia, March 2-9, 2019, bred by Usman Ode. *CITES:* Export permit N° 18444/IV/SATS-LN. 2025.

***Troides* (*T.*) *h. helena* Linnaeus, 1758, ♀ *dea* f. nov.**

(Fig. 1a, 7a-b)

Holotype, ♀, Bali Island, Indonesia, May 2016, Usman Ode, IMQC.

Paratype, ♀, Java Island, Indonesia, May 2016, Usman Ode, IMQC.

Fig. **7a-b**. *Troides* (*T*.) *h*. *helena dea* **f**. **nov**. holotype ♀ (wingspan 11.5 cm), Bali Island, Indonesia. **a**. Dorsal face. **b**. Ventral face.

Various pale female forms have been published, including f. *hycetus* Rippon, 1906 (= *albicans* Roepke, 1935), the most extreme of which serves as a comparison (Fig. 8). The forewings have a large pale cell spot covering one third of subapical area, which connected to a set of pale enlarged vein-stripes confluent with veins in the median area. As in f. *jupiter* Oberthür, 1879, all dark subdiscal spots on hindwings are absent, except in rare cases where some can be present.

Fig. **8**. *T*. *h*. *helena* ♀ f. *hycetus*, holotype, dorsal face (D. Wilson photo).

Description of the holotype (comparisons made with the ♀ f. *hycetus*)

Wingspan. – 11. 5 cm, forewing length 7.5 cm.

Forewing dorsal face. – Blurred pale cell patch. – Size of pale vein-stripes greatly reduced and shaded by dark brown scales.

Forewing ventral face. – Pale vein-stripes less densely shaded.

Hindwing dorsal face. – Yellow discal area without black subdiscal spots.

Hindwing ventral face. – Paler yellow discal area, even more in spaces 1 and 2 and 5 and 6.

Paratype, ♀ (Fig. 1a, 9a-b)

Fig. **9a-b**. *Troides* (*T*.) *h*. *helena dea* **f**. **nov**. paratype ♀ (wingspan 11.0 cm), Java Island, Indonesia. **a**. Dorsal face. **b**. Ventral face.

Wingspan. – 11.0 cm, forewing length 7.0 cm.

Forewing dorsal face. – Extensive and lighter vein-stripes. – Well-defined and pale cell patch, smaller than in f. *hycetus*. – Greatly reduced pale lower vein-stripes.

Forewing ventral face. – Pale whitish vein-stripes. – Pale lower veins without dark scale.

Hindwing dorsal face. – Tiny subdiscal dark spot in space 2.

Hindwing ventral face. – Subdiscal dark spot twice larger in space 2.

Etymology. – *dea,* meaning goddess. This word chosen to describe the image that comes to the mind when looking at this amazing butterfly.

Material type deposited in the collections

- Holotype ♀, Bali Island, Indonesia, July 2016; paratype ♀, Java Island, Indonesia, August 2017, Insectarium de Montréal, Québec, Canada (G. Deslisle donation). *CITES*: Export permit n° 05421/IV/SATS-LN/2019

Kayoa Island, **new locality** for
Troides (***T***.) ***criton*** Felder, 1860
(Fig. 10a-b)

New locality for *T*. *criton*, Kayoa Island, Moluccas, Indonesia, May 2, 2018, A. Alisi, IMQC.

The distribution area for species *Troides criton* is in Northern Moluccas and Obi Island with the respective subspecies *c*. *criton* Felder, 1860 and *c*. *critonides* Frushtorfer, 1903. Kayoa Island is a new locality to add to the distribution area of ssp. *c*. *criton*. It is located west of the large island of Halmahera and straddles the Equator. Coordinates: Latitude ~0.067° North, Longitude ~127.417° East (en. wikipedia.org).
In May 2018, during my expedition to Kayoa Island, my hunting guide A. Alisi captured a species *criton* female (Fig. 11a-b).

Comparison material shows it to be ♀ f. *androgyna* Jordan, 1908, described as follows: dark brown forewings with pale

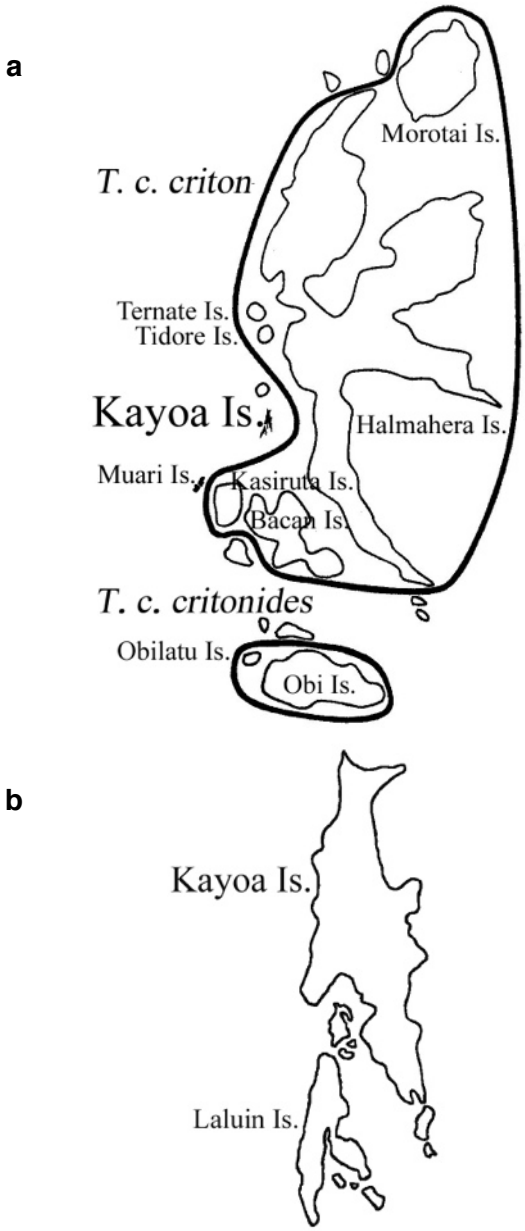

Fig. **10a-b**. **a**. Distribution of ssp. *c*. *criton* and ssp. *c*. *critonides* and localisation of Kayoa Island, Moluccas, Indonesia. **b**. Kayoa Island.

scales forming stripes along the veins and a pale golden-yellow hindwings similar to that of male. A male in flight briefly seen.

Fig. 11a-b. *T. c. criton* ♀ f. *androgyna* (wingspan 11.5 cm) **new locality**, Kayoa Island, Moluccas, Indonesia. **a**. Dorsal face. **b**. Ventral face.

♀ f. *androgyna*, Kayoa Island, Moluccas, Indonesia, May 2, 2018, deposited in the collection Insectarium de Montréal, Québec, Canada (G. Deslisle donation). *CITES*: Export permit N° 05421/IV/SATS-LN/2019.

Ornithoptera (*Schoenbergia*) *paradisea arfakensis* **f. loc.** ***orientalis*** Dufek & Schäffler, 2006: description of the unknown female

(Fig. 12, 13-14).

♀, Fak Fak, Onin Peninsula, Indonesia, April 2018, Usman Ode, IMQC.

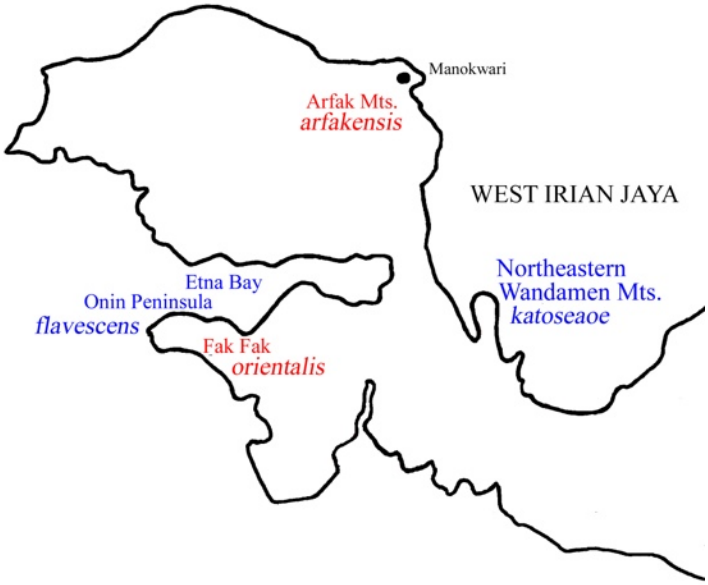

Fig. 12. In red, location of Fak Fak, Onin Peninsula, Indonesia.

The f. loc. *orientalis* established based on the study of four male specimens, without knowledge of the female.

Fig. 13a-b. **a**. *Ornithoptera* (*Sch.*) *paradisea arfakensis* f. loc. *orientalis* ♀ (wingspan 15.3 cm), Fak Fak, Onin Peninsula, Indonesia, dorsal face. **b**. *O.* (*Sch.*) *paradisea arfakensis* f. loc. *arfakensis* ♀ (wingspan 14.7 cm), Arfak Mts., Irian Jaya, Indonesia, dorsal face.

Fig. 14a-b. **a**. *Ornithoptera* (*Sch.*) *paradisea arfakensis* f. loc. *orientalis* ♀ (wingspan 15.3 cm), Fak Fak, Onin Peninsula, Indonesia**,** ventral face. **b**. *O.* (*Sch.*) *paradisea arfakensis* f. loc. *arfakensis* ♀ (wingspan 14.7 cm), Arfak Mts, Irian Jaya, Indonesia, ventral face.

Description of the female

Wingspan. – 15.3 cm, forewing length 10.0 cm.

Hindwing dorsal face. – Slightly rounded shape. – Extremely broad dark marginal band with blurred inner edge reaching the subdiscal dark spots in spaces 4 to 6.

Hindwing ventral face. – Dark marginal band even wider than on dorsal side, also with a blurred inner edge.

Note. – The female discovered in a batch of specimens identified as *O.* (*Sch.*) *t. tithonus* De Haan, 1840 from Fak Fak, Onin Peninsula, Indonesia.

Deposit. – ♀ *paradisea arfakensis* f. loc. *orientalis*, Fak Fak, Onin Peninsula, Indonesia, April 2018, deposited in Insectarium de Montréal, Québec, Canada (G. Deslisle donation). *CITES*: Export permit N° 18444/IV/SATS-LN.2025.

Ornithoptera (*Sch.*) *p. paradisea* **f. loc.** ***kotaseaoe*** Dufek & Schäffler, 2006 **description of the unknown female**

(Fig. 12, 15a-b)

♀, Wandamen Mts., (Northeast Wondiboi Mts.) Irian Jaya, Indonesia, June 2018, unknown Indigenous collector, MB.
The f. loc. *kotaseaoe* established based on the study of four male specimens, without knowledge of the female.

To get the opinion of my Japanese colleague Takashi OHYA, I sent him the photo of the female by email (Fig. 15a). According to OHYA (personal communication), « *the female has a* ***white*** *pale band of hindwing, which is completely different from the* ***yellow*** *pale band in my Wandamen specimen, and appears to be ssp. borchi itself. I am now wondering more and more what is really going on. These photos appear to be ssp. flavescens base on my distribution map, but they also closely resemble chrysanthemum f. loc. kotaseaoe (from northeastern Wandamen Mts.). Especially the female, which is listed as known in the original description, is very similar to my own the female of kotaseaoe. Therefore, I think there is a high possibility that two are the same subspecies. Kotaseaoe may be inclusive of ssp. flavescens. More specimens need to search! Both wings resemble ssp. borchi, with pale band on hindwing, not yellow ».*

Fig. 15a-b. **a**. *Ornithoptera* (*Sch.*) *p. paradisea* f. loc. *kotaseaoe* ♀ (wingspan 16.6 cm), Northeast Wondiboi Mts, Irian Jaya, Indonesia, dorsal face. **b**. *Ornithoptera* (*Sch.*) *p. paradisea* f. loc. *flavescens* ♀ (wingspan 15.2 cm), Etna Bay, Onin Peninsula, Irian Jaya, Indonesia, ventral face.

Fig. 16a-b. *Ornithoptera* (*Sch.*) *p. paradisea* f. loc. *kotaseaoe* ♂ (wingspan 12.5 cm), Northeast Wondiboi Mts, Irian Jaya, Indonesia. **a**. Dorsal face. **b**. Ventral face.

Description of the female (comparisons made with the ♀ of ssp. *p. paradisea* f. loc. *flavescens* Rothschild, 1897)

Wingspan. – 16.6 cm, forewing length 10.0 cm, *flavescens* 15.5 cm, forewing length 9.0 cm.

Wing shape. – Stocky and broader forewings. – Prominently pointed hindwings.

Forewing dorsal face. – Larger pale patch within the cell. – More numerous and larger pale median patches.

Hindwing dorsal face. – Reduced discal pale area. – Broader shaded submarginal band. – Narrower dark marginal band.

Remarque. – The male specimen (Fig. 16a-b) received with the female elucidates OHYA's dilemma (Fig. 15a). It matches the holotype description proving that *kotaseaoe* does not belong to species *O.* (*Sch.*) *paradisea chrysanthemum* Kobayashi & Koiwaya, 1979 where all females have yellow hindwings.

Deposit. – The pair of *kotaseaoe*, Wandamen Mts., (Northeast Wondiboi Mts.) Irian Jaya, Indonesia, June 2018 deposited in collection Marcel van Bijnen.

Two new local forms of subspecies *Ornithoptera* (*O.*) *c. croesus* Wallace, 1859 from Kayoa and Muari Islands, Moluccas, Indonesia.

The discovery of species *croesus* by Alfred Wallace remains a most memorable story. Here is what he wrote to express the emotion he felt as he was holding the male specimen he had just captured, on Bacan Island (Indonesia) in 1859. *"The beauty and brilliancy of this insect are indescribable, and none but a naturalist can understand the intense excitement I experienced when I at length captured it. On taking it out of my net and opening the glorious wings, my heart began to beat violently, the blood rushed to my head, and I felt much more like fainting than I have done when in apprehension of*

immediate death. I had a headache the rest of the day, so great was the excitement produced by what will appear to most people a very inadequate cause." Alfred Walter Wallace.

Species *croesus* stands out by its metallic orange coloration, unlike any other species in genus *Ornithoptera*. The color varies from golden green to various shades of green, bluish-green, blue, and violet. It is divided into two subspecies: *c. croesus* and *c. lydius* Felder, 1865; the first one being yellow-orange and the second one being red-orange. Like other species, males and females both show marked sexual dimorphism (Fig. 1a-d).

Fig. 17a-d. Subspecies of species *O.* (*O.*) *croesus*. **a-b**. *c. croesus*. **a**. ♂ dorsal face. **b**. ♀ dorsal face. **c-d**. *c. lydius*. **c**. ♂ dorsal face. **d**. ♀ dorsal face.

Comparisons are mainly made based on f. loc. *c. croesus* from Bacan Island. Both sexes show a similar overall morphology, including the same variations and forms such as f. *berchmansi* van den Bergh, 1926 and *andrea* and *biaureomaculata* Schäffler, 2001. The great variability of shared characters makes it practically impossible to differentiate ff. loc. None of the patterns remains exclusive, which may be more or less constantly present. Therefore, it is not justified to apply the status of subspecies to the two following new ff. loc. *nobesi* **nov**. and *laantoni* **nov**., but preferably that of geographical forms showing one or more predominant characters. The other ff. loc. are *wallacei* Deslisle, 1991 from Mandioli Island, and *helios* Kobayashi & Hayami, 1992 (♂), Hayami 1994 (♀) from Kasiruta Island.

***Ornithoptera* (*O.*) *c. croesus* f. loc. *nobesi* nov.**

(Fig. 19-20)

Holotype, ♂**,** Kayoa Island, Moluccas, Indonesia, April 9, 2017, La Anton, IMQC.

Paratypes, **28** ♂, **20** ♀, Kayoa Island, Moluccas, Indonesia, April-May 2017, La Anton, IMQC, PD, PF.

Mount Jojaru to the east is of volcanic origin and reaches 400 meters; Tigalalu to the west, of sedimentary origin reaches 422 meters. The neighboring islands to the south are Kasiruta, 40km away, and Bacan, 45km away (Fig. 10a-b, 18).

Fig. 19. *Ornithoptera* (*O.*) *c. croesus* f. loc. *nobesi* **nov**. holotype ♂ (wingspan 12.6 cm), Kayoa Island, Moluccas, Indonesia, dorsal face.

Fig. 20. *Ornithoptera* (*O.*) *c. croesus* f. loc. *nobesi* **nov**. holotype ♂ (wingspan 12.6 cm), Kayoa Island, Moluccas, Indonesia, ventral face.

Description of the holotype

Wingspan. – 12, 6 cm, forewing length 7, 4 cm.

Forewing dorsal face. – Most predominant feature: Radial band running around the cell apex to the base of space 4 (M3).

Forewing ventral face. – Green patches slightly shaded by a dusting of dark-green olive scales.
- Hooked pointed cell ends.

Hindwing dorsal face. – Number and shape of semi-translucent spots, commonly observed in *croesus*. – Small rounded black spot in space 5, commonly observed in *croesus*.

Hindwing ventral face. – Green anal spaces lightly dusted with dark olive-green scales.

Paratypes, ♂, variations

Wingspan. – 11.5-15.0 cm, forewing length 6.8-8.4 cm. On average, slightly smaller than f. loc. *croesus* with 13.0-15.0 cm and forewing length 7.5-8.5 cm.

Coloring. – Two specimens slightly greenish. – Two specimens slightly reddish. – f. *andrea*, one specimen (Coll. Nobes).

Forewing dorsal face. – The radial band remains wider than in males from other islands (Fig. 21a-e).

Fig. 21a-e. Variations in radial band expansion. **a**. Narrower, straighter. **b**. Covering more widely the interior of the cell. **c**. Fully covering the cell, extending beyond cell apex to base of space 5 (M2). **d**. Extending beyond apex to base of space 4 (M3). **e**. Even more extended beyond apex to base of space 3 (Cu1).

Predominant variations

f. loc. *croesus* = a) 33/100; b) 22/100; c) 36/100; d) 9/100; e) 2/100.
f. loc. *wallacei* = a) 14/51; b) 5/51; c) 6/51; d) 20/51; e) 6/51.
f. loc. *helios* = a) 22/47; b) 16/47; c) 10/47; d) 0/47; e) 0/47.
f. loc. *nobesi* **nov**. holotype & paratypes = a) 0/29; b) 6/29; c) 9/29; d) 11/29; e) 3/29.
f. loc. *laantoni* **nov**. holotype & paratypes = a) 0/10; b) 0/10; c) 2/10; d) 8/10; e) 0/10.
From known material, in f. loc. *nobesi* **nov**. and f. loc. *laantoni* **nov**. the radial band is never narrow (Fig. 21a).
The f. loc. *wallacei* and *laantoni* **nov**. closer to *nobesi* **nov**. and *croesus* and less to *helios*. It is to note that *nobesi* is closest to ssp. *c. lydius*.

Forewing ventral face.
- Dark median and discal areas densely covered with dark olive-green scales. (Fig. 22b).
- Moderately dark, 50% of specimens (Fig. 23b).

Green cell patch:
- Nine specimens similar to holotype.
- Three specimens without linear stripe along costal vein.
- Three specimens with a green costal streak within a translucent golden yellow patch.
- Seven specimens with small rounded apex.
- Three specimens with elongated patch showing a trail of green scales.

Hindwing dorsal face.

Subdiscal black spot (s):
- Thirteen specimens with a small rounded one present in space 5.
- Twelve specimens without one in space 5.

Fig. 18. 2018 Expedition. View from the boat of the silhouette of Mounts Tigalalu and Jojaru, on Kayoa Island, Moluccas, Indonesia.

- Three specimens with a series of four to five present from spaces 4-7.

Subdiscal semi-translucent golden spots:
- Similar to holotype, except for three specimens:
- One specimen shows double row stopping at space 2.
- Two specimens with complete double row (f. *biaureomaculata*), (Fig. 24a-b).

Width of the black marginal band:
- Identical to holotype, except for six specimens:
- Narrower in three specimens.
- Wider in three specimens.

Individual major variations

Wings ventral face. – One specimen with median and discal areas densely covered with dark olive-green scales (Fig. 22a-b).

Fig. **22a-b**. *O. c. croesus* f. loc. *nobesi* **nov**. paratype ♂ (wingspan 14.0 cm). Median and discal areas densely covered with dark olive-green scales. **a**. Dorsal face. **b**. Ventral face.

Hindwing dorsal and ventral faces. – Submarginal band subapically dusted with dark olive-green scales. Ventral face also dusted as in previous variation, but less intensely (Fig. 23a-b).

Fig. **23a-b**. *O. c. croesus* f. loc. *nobesi* **nov**. paratype ♂ (wingspan 13.8 cm) hindwing dorsal face dusted with dark olive-green scales, as well as on ventral face of both wings. **a**. Dorsal face. **b**. Ventral face. (Coll. Nobes).

Form

♂ f. *biaureomaculata* (Double row of subdiscal semi-translucent golden patches on hindwing.)

Fig. **24a**-b. *O. c. croesus* f. loc. *nobesi* **nov**. paratype ♂ f. *biaureomaculata* (wingspan 12.5 cm). **a**. Dorsal face. **b**. Ventral face (Coll. Nobes).

Paratypes, ♀.

Typical specimen (Fig. 27-28)

Fig. **27**. *O. c. croesus* f. loc. *nobesi* **nov**. typical paratype ♀ (wingspan 17. 0 cm), Kayoa Island, Moluccas, Indonesia, dorsal face.

Fig. **28**. *O. c. croesus* f. loc. *nobesi* **nov**. typical paratype ♀ (wingspan 17. 0 cm), Kayoa Island, Moluccas, Indonesia, ventral face.

Wingspan. – 17.0 cm, forewing length 9.5 cm.

Hindwing dorsal and ventral face. – Predominant feature: pale subapical cell spot always present. – Variations in ground color and pale spots similar to *c. croesus*.

Other paratypes, ♀, variations.

Wingspan. – 14.2 to 17.0 cm, forewing length 9.0 to 9.5 cm. On average, slightly less than in f. loc. *c. croesus* 15.0 to 18.5 cm, forewing length 9.5 to 10.5 cm.

Forewing dorsal face. – Similar variations, more or less numerous and extensive pale patches. – Pale cell patch divided or not.

Forewing ventral face. – More numerous whitish median patches.

Hindwing dorsal face. – Pale subapical cell spot, rarely present in other ff. loc. In the Bacan population, present in 8/168 specimens (4.7%), Mandioli 4/18 (22.2%), Kasiruta 5/36 (13.8%) and Muari 0/10 (0%).
- Variations in the shape and size of cell pale spot ranging from minimal to large (Fig. 29a-e).

Fig. **29a-e**. *O. c. croesus* f. loc. *nobesi* **nov**. paratype ♀ cell pale subapical spot variations in shape and size.

- Shaded discal spaces more or less extensive depending on the size of dark subdiscal patches (Fig. 29).
- When dark subdiscal spots are larger and confluent, all shaded spaces in discal area become smaller.
- When dark subdiscal spots are smaller, consequently not confluent, then the shade extends to reach submarginal band. (Fig. 29c).

Hindwing ventral face. – Lighter cell and median patches. – Submarginal band with pale patches that have turned yellow.

Contrasting major variations

- Darker, pale spots less in number and smaller in size (Fig. 30a-b).
- Paler, pale spots more in number and size (Fig. 31a-b).

Fig. **30a-b**. Darker variations in *O. c. croesus*. **a**. Paratype ♀ f. loc. *nobesi* **nov**. **b**. f. loc. *croesus*.

Fig. **31a-b**. Paler variations in ssp. *O. c. croesus*. **a**. Paratype ♀ f. loc. *nobesi* **nov**. **b**. f. loc. *croesus*.

***Ornithoptera* (*O.*) *c. croesus* f. loc. *nobesi* ♂ f. *olivaceus* nov.**

(Fig. 25-26)

Holotype, ♂, Kayoa Island, Moluccas, Indonesia, April 2017, La Anton, GN.

Fig. **25**. *O. c. croesus* f. loc. *nobesi* **nov**. holotype ♂ f. *olivaceus* **nov**. (wingspan 13. 0 cm), Kayoa Island, Moluccas, Indonesia, dorsal face (Coll. Nobes).

Fig. **26**. *O. c. croesus* f. loc. *nobesi* **nov**. holotype ♂ f. *olivaceus* **nov**. (wingspan 13. 0 cm), Kayoa Island, Moluccas, Indonesia, ventral face.

Description of the holotype

Wingspan. – 13. 0cm

Forewing dorsal face. – Radial band lightly dusted basally with olive-green scales. – Subapical golden streak in radial band. – Not translucent small yellow streak in cell. – Olive-green anal band.

Forewing ventral face. – Olive-green patches.

Hindwing dorsal face. – Olive-green ground color. –Golden patches larger, notably within cell. – Subdiscal double row of golden spots ending at space 4. – Asymmetrical number of subdiscal black spots, five on the left, four on the right.

Hindwing ventral face. – Olive-green ground colour.

Etymology. – Color *olivaceus* refers to that of olives.

Remarque. – The predominance of a more extensive radial band on the dorsal surface of forewings in males, combined with the constant presence of a pale spot in hindwings cell in females, allows us to distinguish f. loc. *nobesi* **nov**. Given the number of known specimens, f. loc. *wallacei* from Mandioli Island seems morphologically closer to f. loc. *nobesi* **nov**. and less to f. loc. *helios*. At species level, f. loc. *nobesi* **nov**. is closer to ssp. *c. lydius*.

For the pleasure of the eyes (Fig. 32a-b).

Fig. **32a-b**. *O. c. croesus* f. loc. *nobesi* **nov**. Kayoa Island, Maluku, Indonesia, June 2024. **a**. Male basking in the sun. **b**. Newly emerged female drying her wings (Photos Alisi Yende).

Etymology. – This superb new local form dedicated to Greg Nobes, as its discoverer. Incidentally, his good friend Edward Archer, whose subspecies *Ornithoptera victoriae archeri* (1984) was named after Peter Calderara, wanted Greg to be honoured by having a new Birdwing Butterflies named after him: *nobesi*. Archer, according to information, had indicated to him that the *croesus* species was present on Kayoa Island. Thus, during his first expedition in January 1983, after a week of intense search, Greg Nobes captured two females. It was great disappointment to him for not being able to spot the male. As Greg stated « *the late Ted Archer would be proud of me, as nobesi represents the culmination of over 40 years of work* ».

Deposit

- Holotype, ♂, Kayoa Island, Moluccas, Indonesia, April 9, 2017,
- Paratypes, idem, April-May 2017: **18** ♂ (**2** ♂ f. *biaureomaculata*, **3** ♂, f. *berchmansi*), **11** ♀, Insectarium de Montréal, Québec, Canada (G. Deslisle donation);
- Paratypes, idem, **1** ♂, **1** ♀, in coll. Pablo Deslisle;
- Paratypes, idem, **2** ♂, **2** ♀ in coll. Philippe Fol ;
All previous *CITES* Export Permit N° 18444/IV/SATS-LN.2025.
- Holotype ♂ f. *olivaceus* **nov**., paratypes, idem, April-May 2016, **7** ♂ (♂ f. *biaureomaculata*), **6** ♀, deposited in coll. Gregory Nobes.
CITES: Export permit N° 18444/1V/SATS-LN.2025.

***Ornithoptera* (*O.*) *c. croesus* f. loc. *laantoni* nov.**
(Fig. 34-35)

Holotype, ♂, Muari Island, Moluccas, Indonesia, May 7, 2023, local breeder from Anton, IMQC.

Paratypes, **9** ♂, **5** ♀, Muari Island, Moluccas, Indonesia, April-May, 2023, local breeder from Anton, IMQC.

Located in the North Maluku Province, Muari Island, (Fig. 10a, 33) covers an area of approximately 25.1 km² and has a coastline of 35.7 km. The island is mainly composed of plains, with a maximum elevation of 193 meters, dominated by evergreen deciduous forest, covering 71%. It is only about 4 km away from the south of Kasiruta Island. Coordinates: Latitude ~3.25° South, Longitude ~128.08° East. (en. wikipedia.org). (Fig. 33).

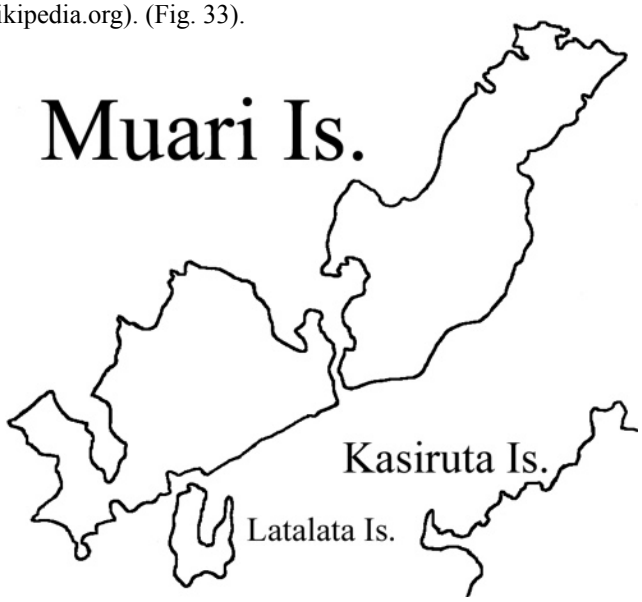

Fig. 33. Muari Island, Moluccas, Indonesia.

Fig. 34. *Ornithoptera* (*O.*) *c. croesus* f. loc. *laantoni* **nov**. holotype ♂ (wingspan 13.5 cm), Muari Island, Moluccas, Indonesia, dorsal face.

Fig. 35. *Ornithoptera* (*O.*) *c. croesus* f. loc. *laantoni* **nov**. holotype ♂ (wingspan 13.5 cm), Muari Island, Moluccas, Indonesia, ventral face.

Description of the holotype

Wingspan. – 13.5 cm, forewing length 7.9 cm.

Forewing dorsal face. – Radial band with a straight-line delimitation halfway basally, then slightly curving subapically. – Radial band (Fig. 34) extending around cell apex to space 4 (M3). – Three pairs of small orange submarginal spots on each side of veins 4-6.

Forewing ventral face. – Green patches slightly shaded by olive-green scales.

Hindwing dorsal face. – Bicolor, orange discally more or less densely surrounded by metallic green. – Four black subdiscal spots, spaces 4 to 7.

Hindwing ventral face. – Discal area slightly shaded by olive-green scales.

***Paratypes**, variations*

Wingspan. – 12. 6 to 14.5 cm, forewing length 6.0 to 8.5cm. On average, slightly less than in f. loc. *c. croesus* 13.0 to 15 cm and forewing length 9.5 to 10.5 cm.

Forewing dorsal face. – Three specimens with a more extensive metallic green coloration than the holotype (Fig. 36a-c).

Fig. 36a-c. *Ornithoptera* (*O.*) *c. croesus* f. loc. *laantoni* **nov**. paratypes ♂ Muari Island, Moluccas, Indonesia, dorsal faces. **a**. (wingspan 12.5 cm). **b**. (wingspan 11. 0 cm). **c**. f. *andrea* (wingspan 13.1 cm).

- Three specimens with a more extensive metallic green coloration than the holotype (Fig. 37a-c).

Fig. 37a-c. *Ornithoptera* (*O.*) *c. croesus* f. loc. *laantoni* **nov**. paratypes ♂ Muari Island, Moluccas, Indonesia, dorsal face. Wings with metallic green coloration less extensive than in the holotype. **a**. (wingspan 14.0 cm). **b**. (wingspan 14.5 cm). **c**. (wingspan 14.5cm).

- Five specimens with a metallic green coloration partially limited 7 and anal spaces.
- All specimens with radial band similar to holotype.
- As for variations in the extension of radial band, see under *nobesi* **nov**. c-d (Fig. 20a-e).

Forewing ventral face. – Green patches slightly shaded by olive-green scales in all specimens.

Hindwing dorsal face. – One specimen with a much reduced orange discal area largely surrounded by metallic green (Fig. 36a). – Four specimens with cell semi-translucent golden patches greatly reduced (Fig. 37a-b). – Four specimens with small black spot in space 5 subdiscally (Fig. 36b-c, 37a and c). – Four specimens without any black spot (Fig. 36a). – One specimen with four subdiscal black spots from spaces 4 to 7 (Fig. 37b).

Hindwing ventral face. – Four specimens with a green ground area slightly shaded by olive-green scales.

***Paratypes,* 5** ♀ (Fig. 38, 39, 40a-b, 41a-b)

Typical specimen (Fig. 38-39).

Fig. 38. *Ornithoptera* (*O.*) *c. croesus* f. loc. *laantoni* **nov**. typical paratype ♀ (wingspan 16.0 cm), Muari Island, Moluccas, Indonesia, dorsal face.

Fig. 39. *Ornithoptera* (*O.*) *c. croesus* f. loc. *laantoni* **nov**. typical paratype ♀ (wingspan 16.0 cm), Muari Island, Moluccas, Indonesia, ventral face.

Wingspan. – 16.0 cm, forewing length 9.2 cm. – Darker brown background color.

Forewing dorsal face.

Fewer and reduced pale patches:

- Cell with two short parallel striations along costal vein.
- Tiny pale median patch, space 1A.
- Smaller submarginal pale patches.

Forewing ventral face. – Pale patches less shaded, more whitish. – Larger and more numerous pale patches in cell and median areas.

Hindwing dorsal face. – Dark brown basal area wider distally. – Reduced isosceles discal spaces. – Tiny pale subapical spot in space 6. – All dark subdiscal patches connected.

Hindwing ventral face. – Whitish isosceles discal patches. – Dull pale yellow submarginal band.

Variations

Wingspan. – 16.4-17.5 cm, forewing length 9.5-10.0 cm. On average, slightly smaller than f. loc. *c. croesus* and larger than f. loc. *nobesi* **nov**.

Forewing dorsal face.

Pale patches systematically fewer and smaller:

- One specimen with only a small oblong pale cell streak (Fig. 40a).
- Two specimens with two short parallel pale streaks halfway along costal vein.
- Two specimens as above, plus a small oblong subapical patch (Fig. 41a).
- Three specimens with two pale patches in median area, spaces 1A and 2.
- One specimen with three pale patches in median area, spaces 1A to 3.
- Two specimens with reduced subapical and submarginal pale patches, including in subapical area and submarginal band (Fig. 40a).
- One specimen with incomplete series of even smaller pale submarginal patches (Fig. 40a).

Forewing ventral face. – Similar to the typical one, slight enlargement of the pale patches, lighter and more numerous.

Hindwing dorsal face. – Similar to the typical one.

Hindwing ventral face. – Pale patches remaining slightly shaded, not as whitish as elsewhere. – Pale yellow patches slightly paler submarginally.

Fig. **40a-b**. *Ornithoptera* (*O*.) *c*. *croesus* f. loc. *laantoni* **nov**. paratype ♀ (wingspan 16.5 cm), Muari Island, Moluccas, Indonesia. **a**. Fewer pale patches, dorsal face. **b**. More numerous visible, ventral face.

Fig. **41a-b**. *Ornithoptera* (*O*.) *c*. *croesus* f. loc. *laantoni* **nov**. paratype ♀ (wingspan 17.0 cm), Muari Island, Moluccas, Indonesia. **a**. More numerous pale patches, dorsal face. **b**. Ventral face.

Remarque. – The f. loc. *laantoni* **nov**. stands out by the predominance of a metallic bicolor orange and green in males, as well as by the constant shape of the radial band, and in females by their consistently dark shape.

Etymology. – Since I met La Anton in Bali in 1991, our passion for discovering new Birdwing Butterflies has given rise to our common goal. Thanks to his teams of hunters working to find new populations in unexplored sites. Anton having developed morphological expertise over time was able to identify potential new taxa and granted me the privilege of acquiring the first specimens for study. The first taxon described was f. loc. *wallacei* from Mandioli Island, to which two other ff. loc. from the islands of Kayoa and Muari added in this article. I also thank him for the material allowing me to describe the following taxon of *O*. *priamus hecuba* f. loc. *watubelaensis* **nov**. Moreover, I am deeply grateful to the "King of the Moluccas" for having organized, with the help of the professional guide, A. Alisi, the extraordinary expeditions 2018 and 2019 I made to the islands of Bacan, Ceram (Saleman), Ambon, Kayoa and Bau Bau, accompanied by my friend Roch Defayette. I pay tribute here to a wonderful Indonesian collaborator who contributed to a better knowledge of these famous ornithopters.

Deposit

Holotype ♂, Muari Island, Moluccas, Indonesia, May 7, 2023 paratypes, idem, April-May, 2023: **9** ♂, **5** ♀, Insectarium de Montréal, Québec, Canada (G. Deslisle donation).
CITES: Export Permits N° 01371/I/SATS-LN.2025.

***Ornithoptera* (*O*.) *priamus hecuba* f. loc. *watubelaensis* nov.**
(Fig. 45-46)

Holotype, ♂, Watubela Island, Moluccas, Indonesia, January 3, 2022, local breeder from Anton, IMQC.

Paratypes, **9** ♂**, 10** ♀, Watubela Island, Moluccas, Indonesia, January, 2022, local breeder from Anton, IMQC, PD, PF.

The islands of the Watubela archipelago are inhabited by subspecies (*O*.) *priamus hecuba* f. loc. *albireo* Kobayashi & Hayami, 1987 (= *tayandensis* Béla Von Knötgen, 1997). In the past, no publication ever mentioned the presence of *albireo* on the very small island of Watubela (Matabela), approximately 1 by 2 km, compared to the extent of the other islands inhabited by *albireo*. Kasiui is located about 4 km northwest, while the more southeasterly Kur and Tayandu are about 50 and 70 km away, respectively. Coordinates: Latitude ~4.4009° South, Longitude ~131.5945° East. (World-islands.net). (Fig. 42a-b)

This widespread subspecies *O*. *priamus hecuba* Röber, 1891 (Fig. 43a-b) ranges from Kai Island to the northernmost island of Kasiui. The male morphology is closer to that of males of the *Priamus* group. On forewing dorsal face, the submarginal band is generally broader. The hindwings mainly have a golden costal spot, as well as one or more submarginal spots. Three to four large black subdiscal spots are usually present. The ventral face remains mainly bluish (Fig. 43b). The wingspan varies from 13.0 to 14.4 cm, with a forewing length of 6.4 to 8.4 cm. Only males of *p*. *priamus* Linnaeus, 1758 are larger. The female (Fig. 51a) is consistently more contrasting. The large oblong

Fig. **42a-b**. **a**. Watubela Island located between Kasiui Island (northwest) and Tioor Island (southeast), in the Banda Sea. **b**. Watubela Island.

pale cell patch on forewing is distinctive. The female is also among the largest with a wingspan ranging from 16.5 to 17.0 cm and a forewing length of 7.0 to 10.6 cm.
The f. loc. *albireo* (Fig. 44a-b), whose distribution area ranges from the Tayandu Islands (Tayandu Is. Walir Is. Kur Is.) to the Watubela Islands (Kasiui Is.), represents a smaller form of *hecuba*, the green ventral face (Fig. 44b) more singularly differentiates the male. The wingspan ranges from 12.5 to 13.0 cm, forewing length 6.0 to 7.5 cm. In females (Fig. 51b, d-e) pale wing spots are usually less shaded by a dusting of brown scales. The wingspan ranges from 14.0 to 15.5 cm, forewing length 6.5 to 9.6 cm. Morphological comparisons mainly made with *albireo*.

Fig. **43a-b**. *O*. (*O*.) *priamus hecuba* Röber, 1891, ♂. **a**. Dorsal face. **b**. Ventral face.

Fig. **44a-b**. *O*. (*O*.) *priamus hecuba* f. loc. *albireo* ♂. **a**. Dorsal face. **b**. Ventrale face.

Description of the holotype

Fig. **45**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. holotype ♂ (wingspan 13.5 cm) Watubela Island, Moluccas, Indonesia, dorsal face.

Fig. **46**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. holotype ♂ (wingspan 13.5 cm) Watubela Island, Moluccas, Indonesia, ventral face.

Wingspan. –13.5 cm, forewing length 7.5 cm. equivalent to the average wingspan of f. loc. *albireo* of 12.7 cm and that of f. loc. *hecuba* of 13.8 cm.

Forewing dorsal face. – Fully extended median stripe. – Narrower anal-submarginal green band.

Forewing ventral face. – Predominant character: metallic bicoloration, cell and median area blue, green subapical band; *albireo* and *hecuba* respectively monochrome green and blue, sometimes with bicolor variations clearly less intensely than in *watubelaensis* **nov**. – Cell blue patch greatly reduced.

Hindwing dorsal face. – Golden costal patch of relative medium size. – Four small black subdiscal spots, vestigial in space 4. – No submarginal golden spot. – Black marginal band twice as wide as that of *albireo* and *hecuba*.

Hindwing ventral face. – Metallic bicoloration similar to the ventral surface of forewings.

Paratypes, ♂, variations.

Wingspan. – 12.0 to 14.0 cm, forewing length 6.5 to 8.0 cm, intermediate wingspan compared to the smaller *albireo* and the larger *hecuba*. – One specimen with slightly bluish coloration (Fig. 50a-b).

Forewing dorsal face. – More or less completely visible median stripe. – Anal-submarginal green band always narrower.

Forewing ventral face. – One specimen without blue and green coloration in upper part of median patches and subapical area (Fig. 47b). – Five specimens with blue cell patch also reduced. – Four specimens with blue cell patch reduced to rectangular shape (Fig. 48b).

Hindwing dorsal face. – Size of golden spot in costal space:
- Three specimens with similar spot.
- One specimen with larger spot (Fig. 50a).
- Two specimens with smaller spot (Fig. 47-48).

Subapical golden spot:
- One specimen with one small golden spot in space 6 (Fig. 50a).

Submarginal golden spot:
- One specimen with one small golden spot in space 5.
- One specimen with two small golden spots from space 4 to 5 (49a)
- One specimen with three golden spots from space 4 to 6 (Fig. 44a).

Black markings:
- One specimen with four subdiscal black spots (Fig. 47a).
- One specimen with narrower black marginal band (Fig. 49a).

Fig. **47a-b**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♂ (wingspan 12.0 cm) Watubela Island, Moluccas, Indonesia. Small golden spot in costal space, four larger black subdiscal spots. **a**. Dorsal face. **b**. Ventral face.

Fig. **48a-b**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♂ (wingspan 13.0 cm) Watubela Island, Moluccas, Indonesia. Minimal golden basal spot, three smaller subdiscal black spots. **a**. Dorsal face. **b**. Ventral face.

Fig. **49a-b**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♂ (wingspan 12.8 cm) Watubela Island, Moluccas, Indonesia. Larger golden spot in costal space, four small black subdiscal spots and two tiny golden spots. **a**. Dorsal face. **b**. Ventral face.

Fig. **50a-b**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♂ (wingspan 14.0 cm) Watubela Island, Moluccas, Indonesia. Largest golden spot in costal space, three subdiscal black spots as large as that in Fig. 47 and a small subapical golden streak in space 6. **a**. Dorsal face. **b**. Ventral face.

Hindwing ventral face. – Discal area, slight variations in extent of blue coloration compared to the green.

Paratypes, ♀.

Comparisons of dorsal surface of ♀ f. loc. *watubelaensis* **nov**., with that of *hecuba* and those attributed to *albireo* from different islands (Fig. 51a-e).

Fig. **51a-e**. *O. priamus hecuba*. **a**. f. loc. *hecuba,* Kai Is. **b**. f. loc. *albireo*, Kur Is. **c**. f. loc. *watubelaensis* **nov**. Watubela Is. **d**. f. loc. *albireo*, Tayandu Is. **e**. f. loc. *albireo*, Kasiui Is.

Typical specimen (Fig. 51c & 53).

Fig. **53**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♀ (wingspan 16.0 cm) Watubela Island, Moluccas, Indonesia, ventral face.

Wingspan. – 15.8 cm, forewing length 9.0 cm.

Forewing dorsal face. – Pale cell patch reduced. – Subapical pale patches also reduced. – Pale median patches also reduced and less numerous.

Forewing ventral face. – Like *hecuba* and *albireo*, pale patches less shaded by dark scales – Slightly enlarged median pale patches, more greatly in space 3.

Hindwing dorsal face. – Dark basal area more extended discally. – Discal area whitish basally progressively darker distally by a suffusion of dark scales. – Veins more or less extensively covered with dark scales. – Smaller, somewhat rounded subdiscal dark patches. – Submarginal pale yellow patches faintly covered with dark scales. – Dark marginal band twice as wide.

Hindwing ventral face. – Particular character: Anal vein of the cell covered with yellow scales from base to mid-length (Fig. 57). – Pale, less shaded discal spaces. – Submarginal pale yellow patches faintly shaded by brown scales.

Paratypes, variations.

Wingspan. – 15.6-17.5 cm, forewing length 8.8-9.5 cm, on average wingspan larger than *albireo*, smaller than *hecuba*.

Forewing dorsal face. – Cell patch always reduced.
- Two specimens with slightly larger and more numerous median pale spots (Fig. 54a).
- Four specimens without median pale patch in space 4 (Fig. 55a, 56a).

Forewing ventral face. – Slightly enlarged pale spots, the median one even larger in space 3.

Hindwing dorsal face. – Dark basal area always more extensive discally. – Whitish discal area basally, progressively shaded by dark scales. – Dark veins can be more or less widely covered with dark scales. – Dark subdiscal patches slightly reduced (Fig. 54a) or enlarged (Fig. 55a). – Submarginal pale yellow patches faintly covered with dark scales. – Dark marginal band twice as wide.

Hindwing ventral face
Yellow anal cell vein:
- Three specimens similar (Fig. 54b).
- Four specimens shorter (Fig. 55b, 56b).
- Two specimens without any.
- Pale discal area less shaded.
- Submarginal pale yellow patches thinly shaded by brown scales.

Fig. **54a-b**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♀ (wingspan 16.0 cm) Watubela Island, Moluccas, Indonesia. Longer yellow veins. **a**. Dorsal face. **b**. Ventral face.

Fig. **55a-b**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♀ (wingspan 16. 0 cm) Watubela Island, Moluccas, Indonesia. Shorter yellow veins. **a**. Dorsal face. **b**. Ventral face.

Fig. **56a-b**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♀ (wingspan 17.0 cm) Watubela Island, Moluccas, Indonesia. Shorter yellow veins. **a**. Dorsal face. **b**. Ventral face.

Particular character on 80% paratypes ♀ (Fig. 57).

Fig. **57**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. Watubela Island, Moluccas, Indonesia. Hindwing, ventral surface. Close-up of yellow basal cell vein.

Fig. **57**. *Ornithoptera (O.) priamus hecuba* f. loc. *watubelaensis* **nov**. Watubela Island, Moluccas, Indonesia. Hindwing, ventral surface. Close-up of yellow basal cell vein.

Remarque. – Given the small size of Watubela Island, included in the extensive range of f. loc. *albireo*, the discovery of a distinct population of ssp. *hecuba* is surprising. Of intermediate size, f. loc. *watubelaensis* **nov**. is distinguished mainly by the bright blue and metallic green bicoloration in males and by the reduced light patches in females. The yellow vein present for the majority of females is remarkable as it represents a new character in Birdwing.

Etymology. – Named after its place of origin: Watubela Island.

Deposit

- Holotype, ♂, 12 December 2015, paratypes, Watubela Island, Moluccas, Indonesia, January, 2022: **8** ♂, **8** ♀, Insectarium de Montréal, Québec, Canada (G. Deslisle donation);
- Paratypes **1** ♂, **1** ♀ in coll. Pablo Deslisle, idem; **1** ♂, **1** ♀ in coll. Philippe Fol, idem.

CITES: Export Permits N° 01371/I/SATS-LN/2025.

Ornithoptera* (*O*.) *priamus poseidon
f. **loc**. ***aureus*** Parrott, 1987 ♀ **f**. ***madrinneae* nov**.
(Fig. 58-59)

Holotype, ♀, Arfak Mts., Irian Jaya, Indonesia, April 1991, unknown collector, MB.

In the book « Outstanding Birdwing Butterflies » eight female forms were recorded of *O*. (*O*.) *priamus poseidon* f. loc. *aureus* (Parrott, 1987). Six of these distinguished by the yellow coloration of some usually white spots on the forewings or hindwings, or both.

Fig. **58**. *Ornithoptera* (*O*.) *priamus poseidon* f. loc. *aureus*, f. *madrinneae* **nov**. holotype ♀ (wingspan 15.8 cm) Arfak Mts., Irian Jaya, Indonesia, dorsal face.

Fig. **59**. *Ornithoptera* (*O*.) *priamus poseidon* f. loc. *aureus* f. *madrinneae* **nov**. holotype ♀ (wingspan 15.8 cm) Arfak Mts., Irian Jaya, Indonesia, ventral face.

Description of the holotype.

Wingspan – 15.8 cm, forewing length 9.4 cm.

Closer to f. *michikoae* Sumiyoshi, 1989 characterized by all the spots turned yellow and some with green metallic scales, f. *madrinneae* **nov**. Distinguished by the absence of green metallic scales.

Etymology. – Named in honor of Madrinne Nalukenge, wife of Marcel van Bijnen.

Deposit. – Holotype, ♀, Arfak Mts., Irian Jaya, Indonesia, April 1991, deposited in coll. Marcel van Bijnen.
CITES: Export Permit N° 00109/IV/SATS-LN/2003.

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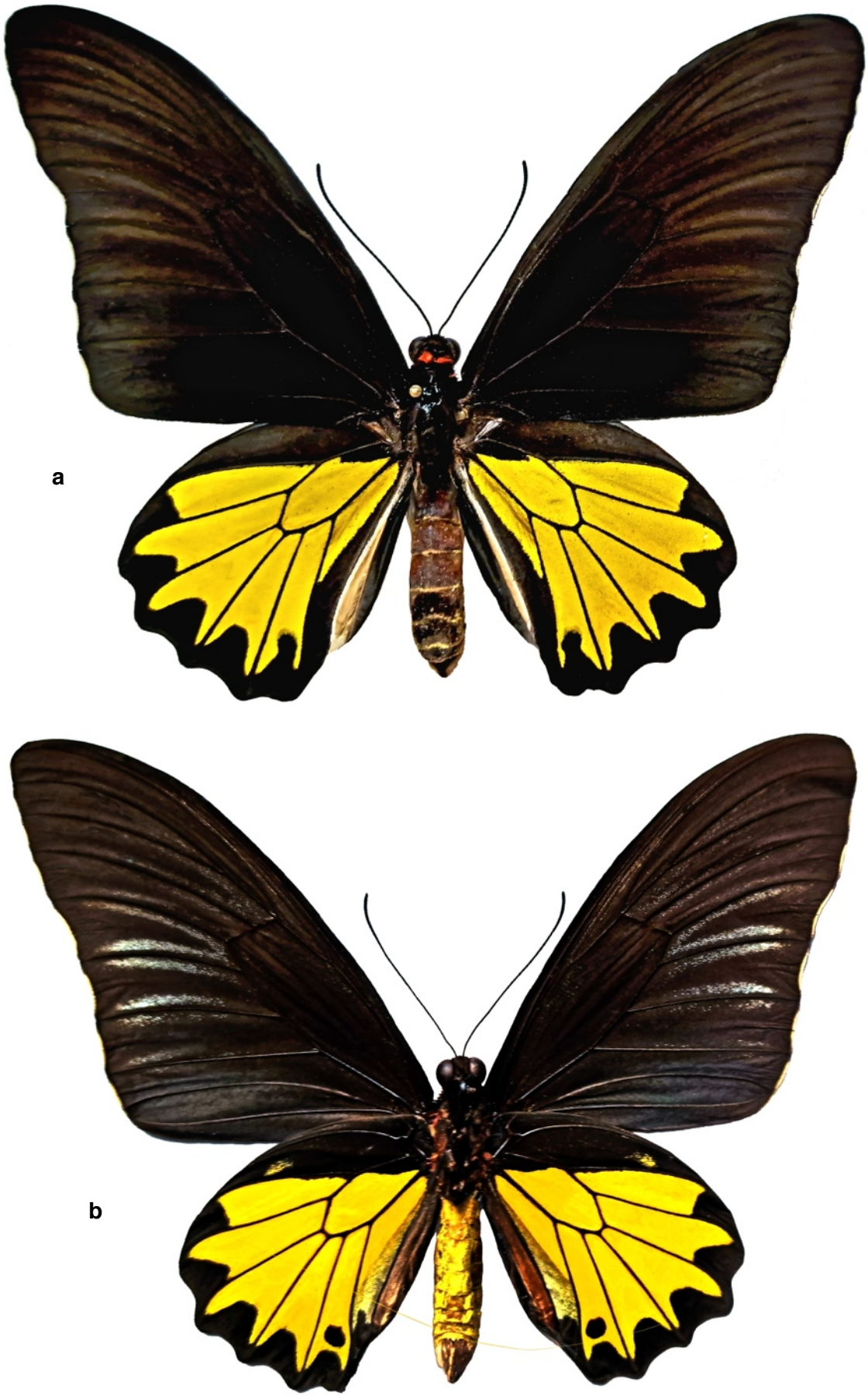

Fig. **2a**-**b**. *T*. *helena usmani* **ssp**. **nov**., holotype ♂, (wingspan 10.5 cm), Karamian Island, Indonesia.
a. Dorsal face. **b**. Ventral face.

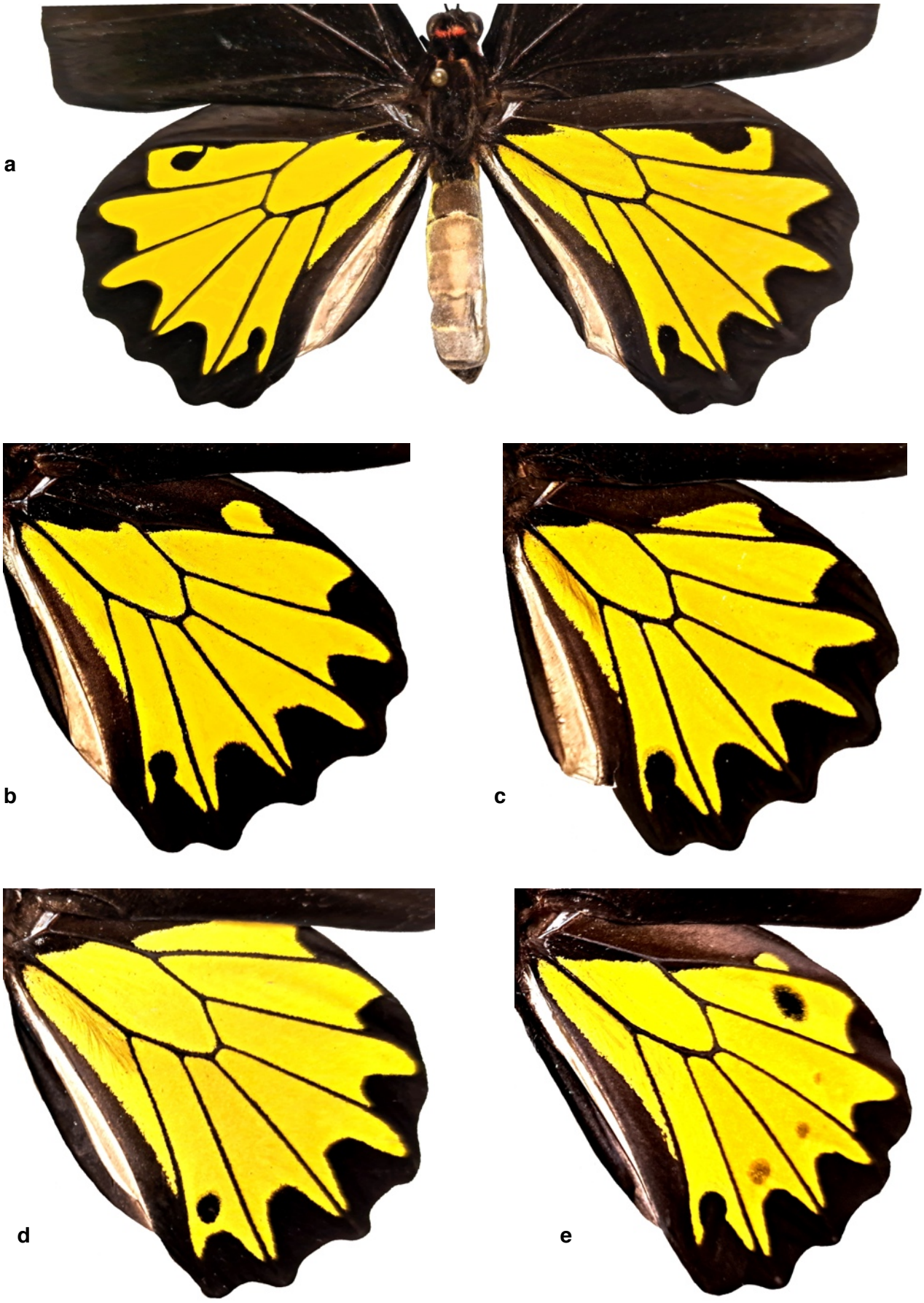

Fig. **3a-e**. *T. helena usmani* **ssp**. **nov**., Karamian Island, Indonesia.

a-c. Without subdiscal black spots. **d**. One subdiscal black spot present in space 2. **e**. Three vestigial subdiscal spots visible from spaces 3 to 5, ventral face view.

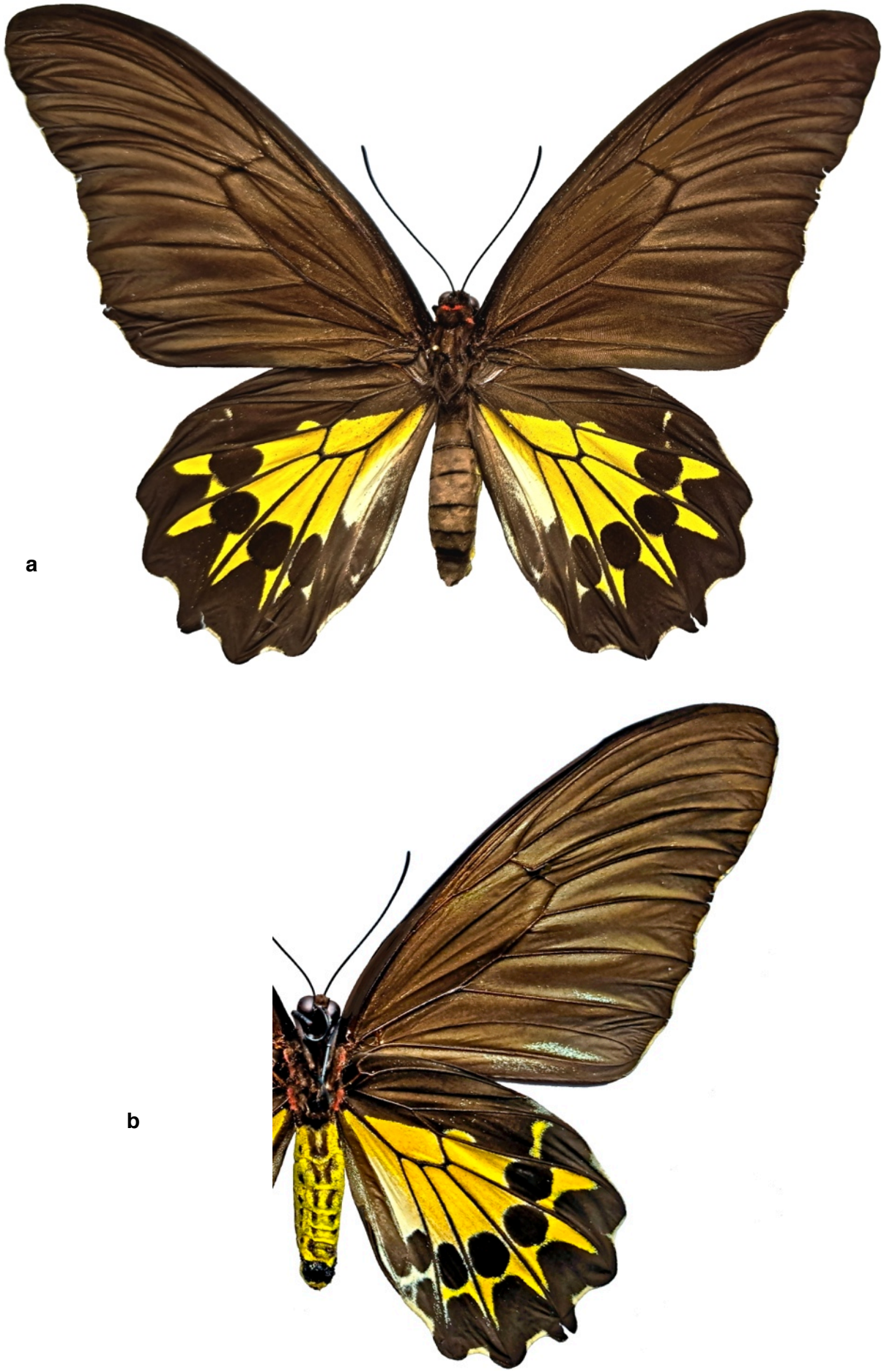

Fig. **4a**-**b**. *T*. *helena usmani* **ssp**. **nov**. typical dark form paratype ♀ (wingspan 12.5 cm), Karamian Island, Indonesia.
a. Dorsal face. **b**. Ventral face.

5

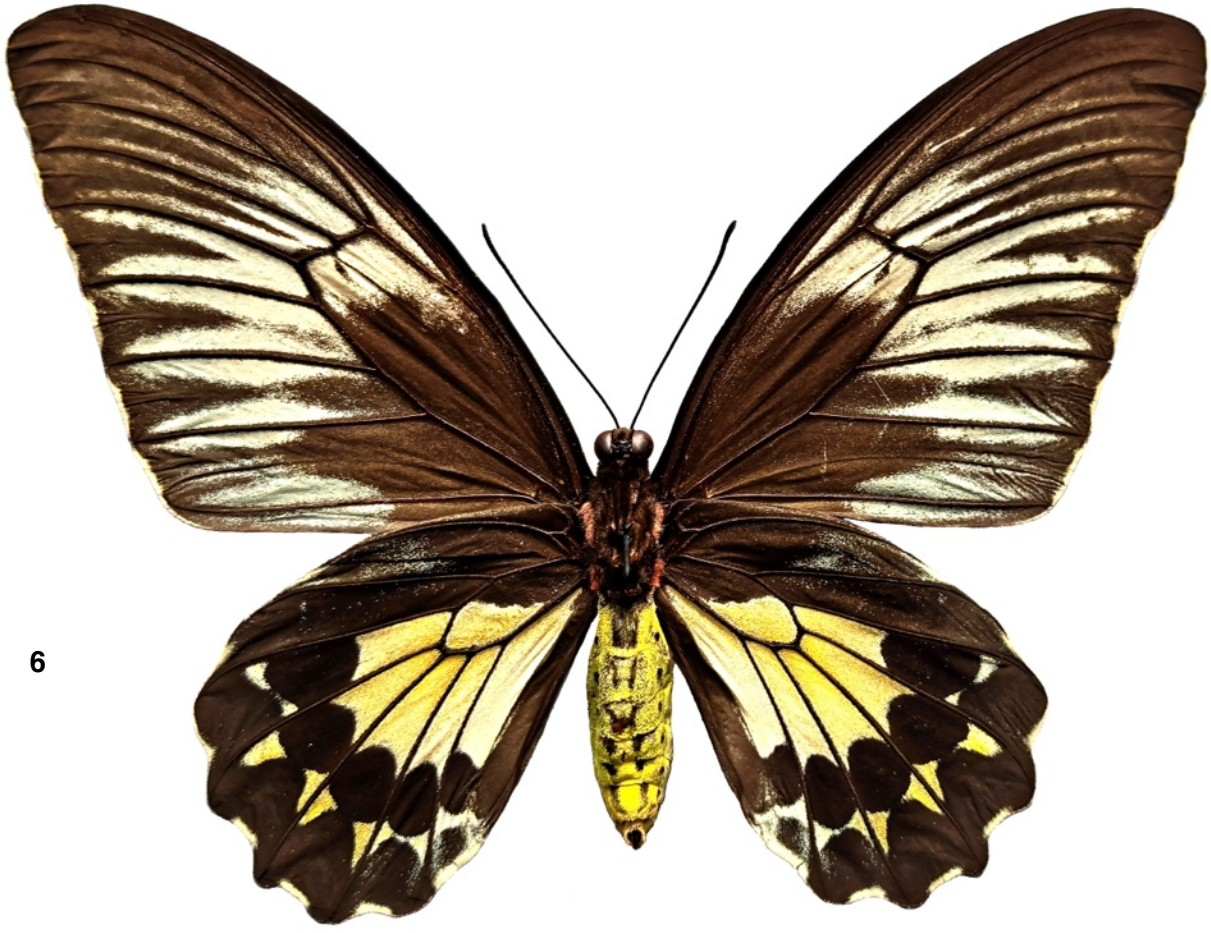

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Fig. **5-6**. *T*. *helena usmani* **ssp**. **nov**. f. *karamianensis* **nov**. holotype ♀ (wingspan 12.8 cm), Karamian Island, Indonesia.
5. Dorsal face. **6**. Ventral face.

Fig. **7a-b**. *Troides* (*T*.) *h*. *helena dea* **f**. **nov**. holotype ♀ (wingspan 11.5 cm), Bali Island, Indonesia.
a. Dorsal face. **b**. Ventral face.

Fig. **9a-b**. *Troides* (*T*.) *h*. *helena dea* **f**. **nov**. paratype ♀ (wingspan 11.0 cm), Java Island, Indonesia.
a. Dorsal face. **b**. Ventral face.

Fig. **11a-b**. *T. c. criton* ♀ f. *androgyna* (wingspan 11.5 cm) **new locality**, Kayoa Island, Moluccas, Indonesia.
a. Dorsal face. **b**. Ventral face.

a

b

Fig. **13a-b**.

a. *Ornithoptera* (*Sch*.) *paradisea arfakensis* f. loc. *orientalis* ♀ (wingspan 15.3 cm), Fak Fak, Onin Peninsula, Indonesia, dorsal face.
b. *O*. (*Sch*.) *paradisea arfakensis* f. loc. *arfakensis* ♀ (wingspan 14.7 cm), Arfak Mts., Irian Jaya, Indonesia, dorsal face.

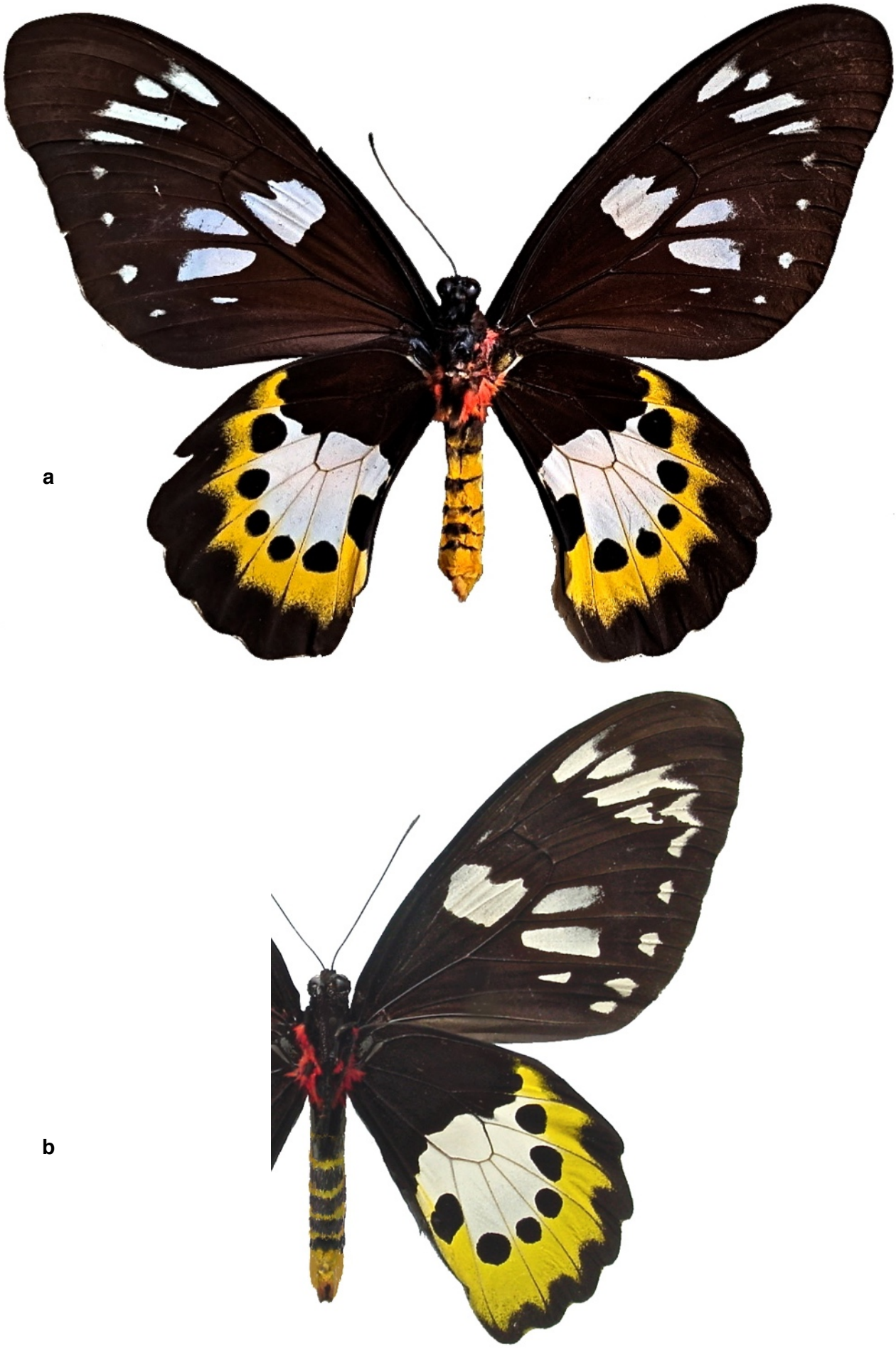


Fig. **14a-b**.

a. *Ornithoptera* (*Sch*.) *paradisea arfakensis* f. loc. *orientalis* ♀ (wingspan 15.3 cm), Fak Fak, Onin Peninsula, Indonesia, ventral face.
b. *O*. (*Sch*.) *paradisea arfakensis* f. loc. *arfakensis* ♀ (wingspan 14.7 cm), Arfak Mts, Irian Jaya, Indonesia, ventral face.

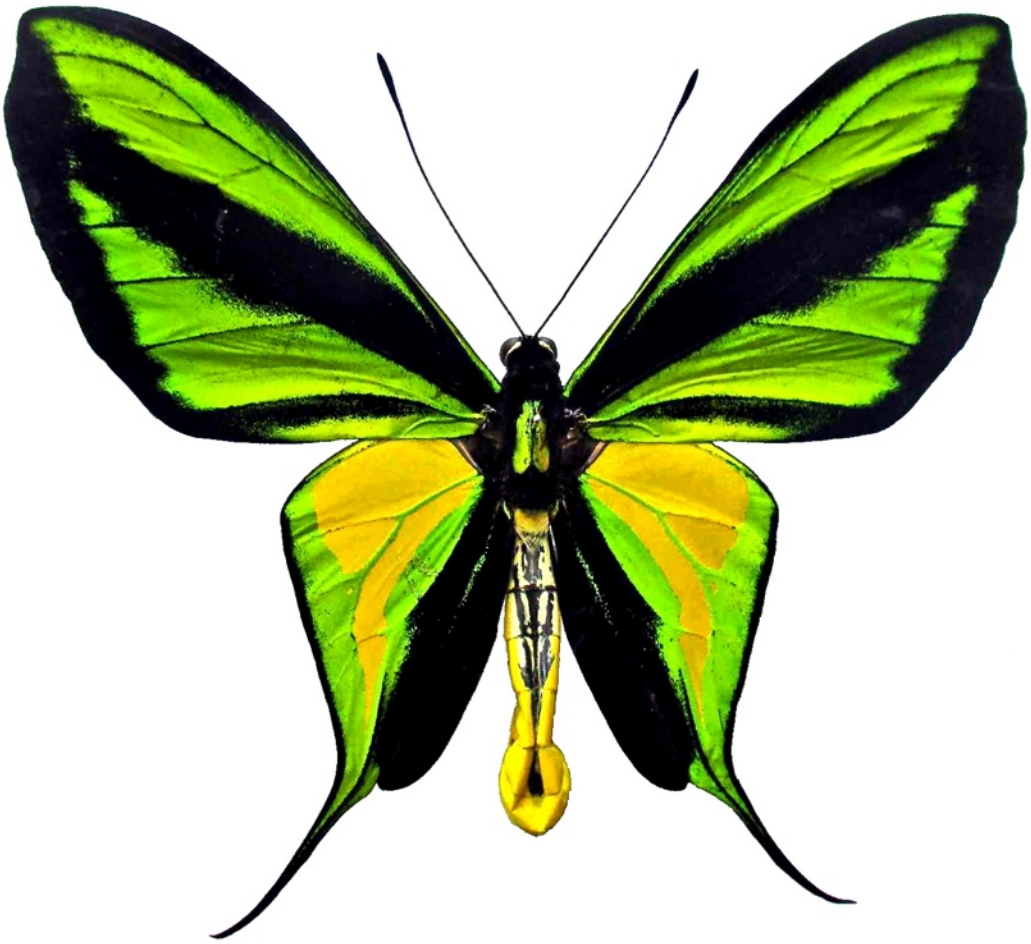
a

b

Fig. **15a-b**.

a. *Ornithoptera* (*Sch.*) *p*. *paradisea* f. loc. *kotaseaoe* ♀ (wingspan 16.6 cm), Northeast Wondiboi Mts, Irian Jaya, Indonesia, dorsal face.
b. *Ornithoptera* (*Sch.*) *p*. *paradisea* f. loc. *flavescens* ♀ (wingspan 15.2 cm), Etna Bay, Onin Peninsula, Irian Jaya, Indonesia, ventral face.

a



b

Fig. **16a-b**. *Ornithoptera* (*Sch.*) *p*. *paradisea* f. loc. *kotaseaoe* ♂ (wingspan 12.5 cm), Northeast Wondiboi Mts, Irian Jaya, Indonesia. **a**. Dorsal face. **b**. Ventral face.

Fig. **17a-b**. Subspecies of species *O*. (*O*.) *croesus*.
a-b. *c*. *croesus*. **a**. ♂ dorsal face. **b**. ♀ dorsal face.

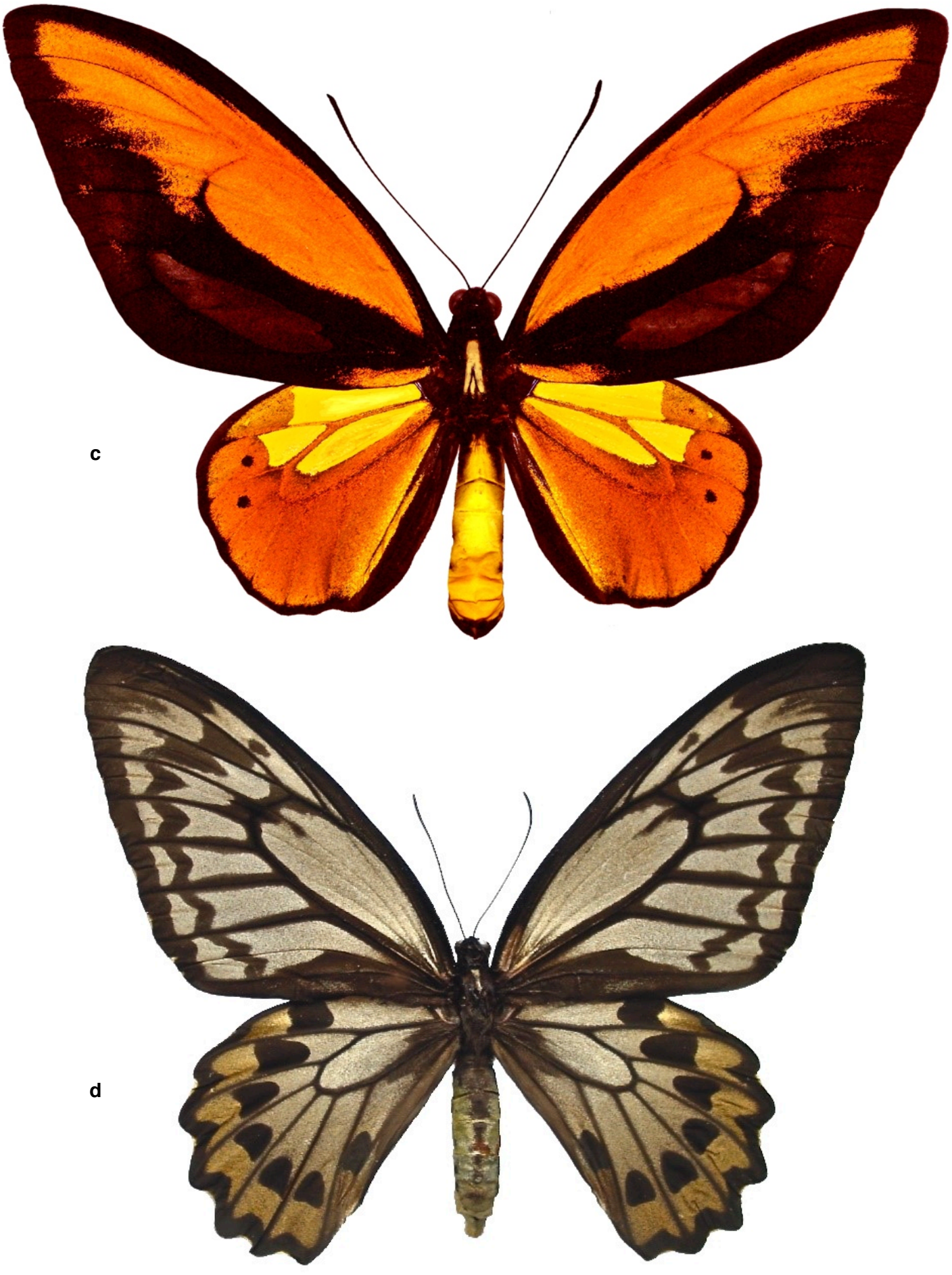
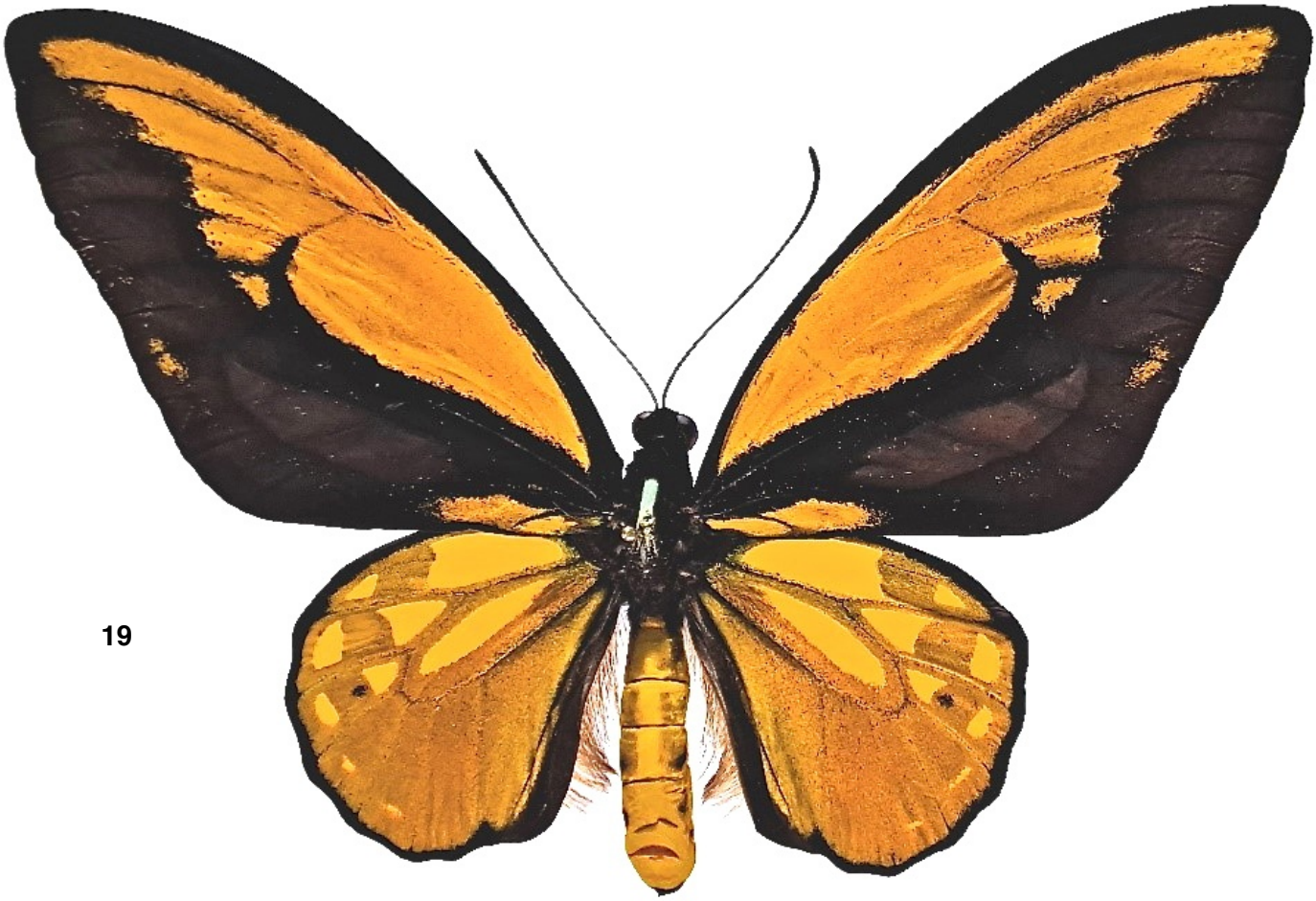


Fig. **17c-d**. Subspecies of species *O*. (*O*.) *croesus*.
c-d. *c*. *lydius*. **c**. ♂ dorsal face. **d**. ♀ dorsal face.



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20

Fig. **19-20**. *Ornithoptera* (*O.*) *c*. *croesus* f. loc. *nobesi* **nov**. holotype ♂ (wingspan 12.6 cm), Kayoa Island, Moluccas, Indonesia. **19**. Dorsal face. **20**. Ventral face.

Fig. **21a-e**. Variations in radial band expansion.
a. Narrower, straighter. **b**. Covering more widely the interior of the cell. **c**. Fully covering the cell, extending beyond cell apex to base of space 5 (M2). **d**. Extending beyond apex to base of space 4 (M3). **e**. Even more extended beyond apex to base of space 3 (Cu1).

Fig. **22a-b**. *O. c. croesus* f. loc. *nobesi* **nov**. paratype ♂ (wingspan 14.0 cm). Median and discal areas densely covered with dark olive-green scales. **a**. Dorsal face. **b**. Ventral face.

Fig. **23a-b**. *O*. *c*. *croesus* f. loc. *nobesi* **nov**. paratype ♂ (wingspan 13.8 cm) hindwing dorsal face dusted with dark olive-green scales, as well as on ventral face of both wings.

a. Dorsal face. **b**. Ventral face. (Coll. Nobes).

Fig. **24a**-b. *O*. *c*. *croesus* f. loc. *nobesi* **nov**. paratype ♂ f. *biaureomaculata* (wingspan 12.5 cm).
a. Dorsal face. **b**. Ventral face (Coll. Nobes).

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Fig. **25-26**. *O*. *c*. *croesus* f. loc. *nobesi* **nov**. holotype ♂ f. *olivaceus* **nov**. (wingspan 13. 0 cm), Kayoa Island, Moluccas, Indonesia, dorsal face (Coll. Nobes).

25. Dorsal face. **26**. Ventral face.

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Fig. **27-28**. *O*. *c*. *croesus* f. loc. *nobesi* **nov**. typical paratype ♀ (wingspan 17. 0 cm), Kayoa Island, Moluccas, Indonesia, dorsal face. **27**. Dorsal face. **28**. Ventral face.

Fig. **29a-e**. *O*. *c*. *croesus* f. loc. *nobesi* **nov**. paratype ♀ cell pale subapical spot variations in shape and size.

Fig. **30a-b**. Darker variations in *O*. *c*. *croesus*.
a. Paratype ♀ f. loc. *nobesi* **nov**. **b**. f. loc. *croesus*.

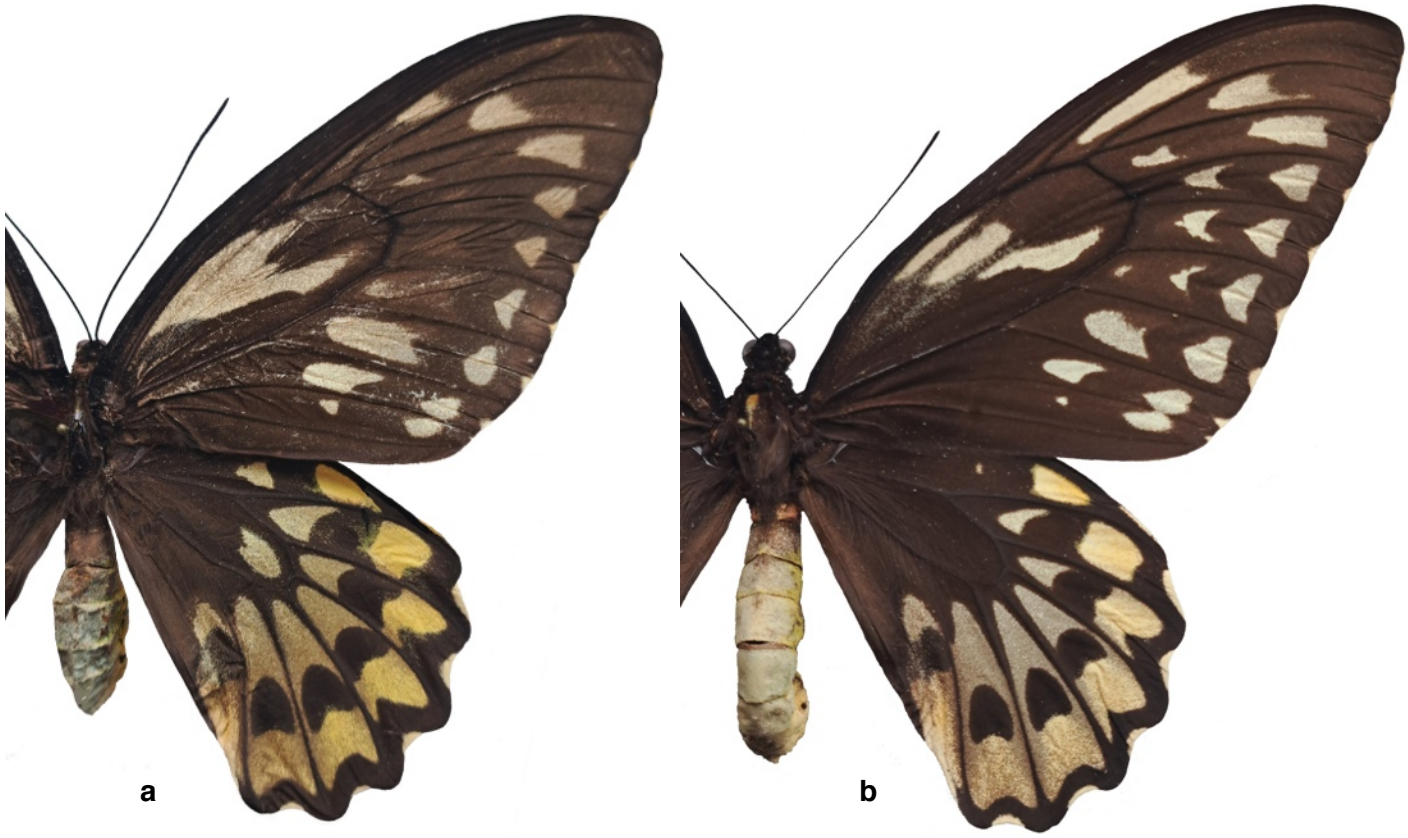

Fig. **31a-b**. Paler variations in ssp. *O*. *c*. *croesus*.
a. Paratype ♀ f. loc. *nobesi* **nov**. **b**. f. loc. *croesus*.

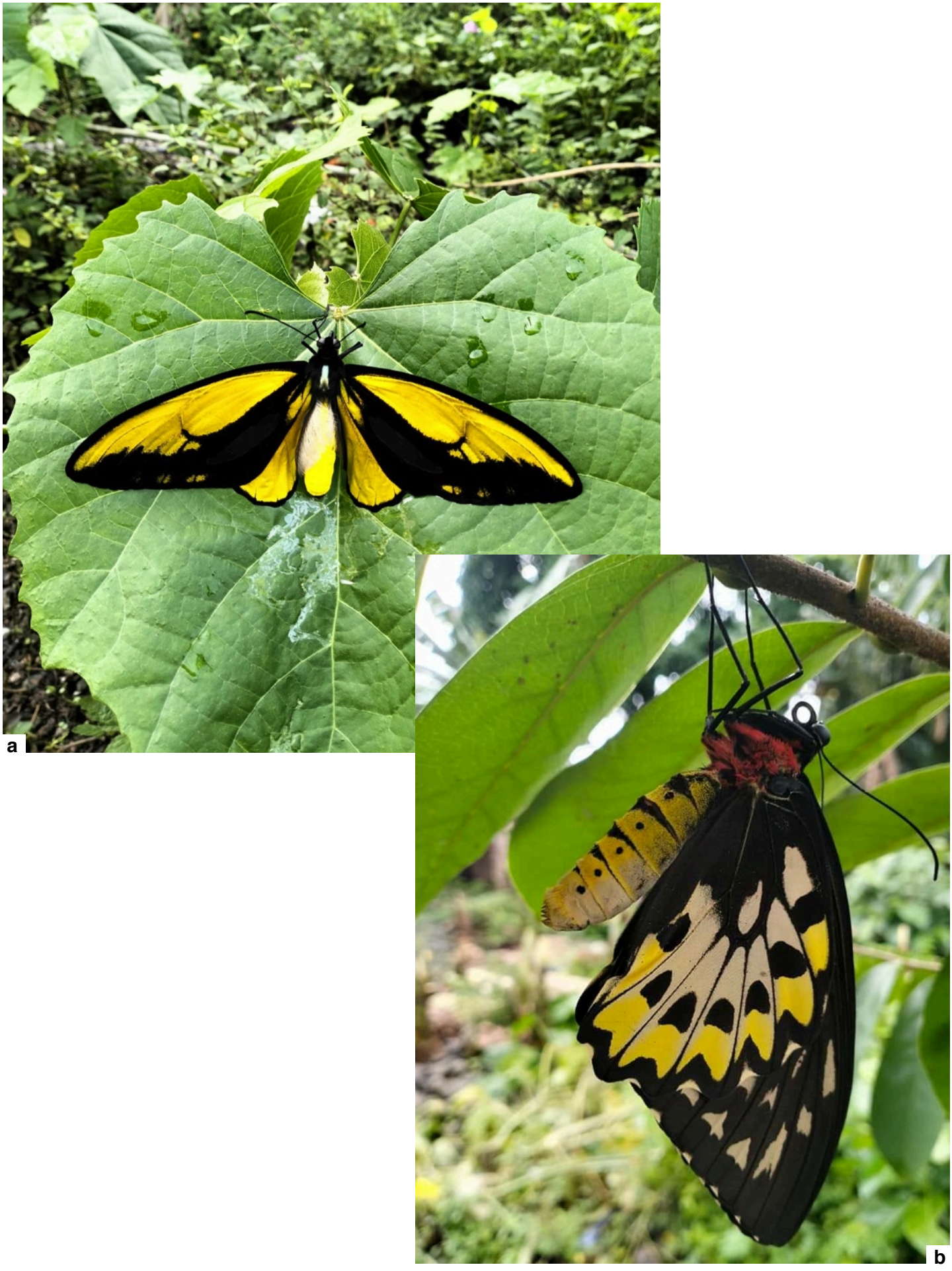

Fig. **32a-b**. *O*. *c*. *croesus* f. loc. *nobesi* **nov**., Kayoa Island, Maluku, Indonesia, June 2024.
a. Male basking in the sun. **b**. Newly emerged female drying her wings (Photos Alisi Yende).

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Fig. **34-35**. *Ornithoptera* (*O.*) *c*. *croesus* f. loc. *laantoni* **nov**. holotype ♂ (wingspan 13.5 cm), Muari Island, Moluccas, Indonesia. **34**. Dorsal face. **35**. Ventral face.

Fig. **36a-c**. *Ornithoptera* (*O*.) *c*. *croesus* f. loc. *laantoni* **nov**. paratypes ♂, Muari Island, Moluccas, Indonesia, dorsal faces. **a**. (wingspan 12.5 cm). **b**. (wingspan 11. 0 cm). **c**. f. *andrea* (wingspan 13.1 cm).

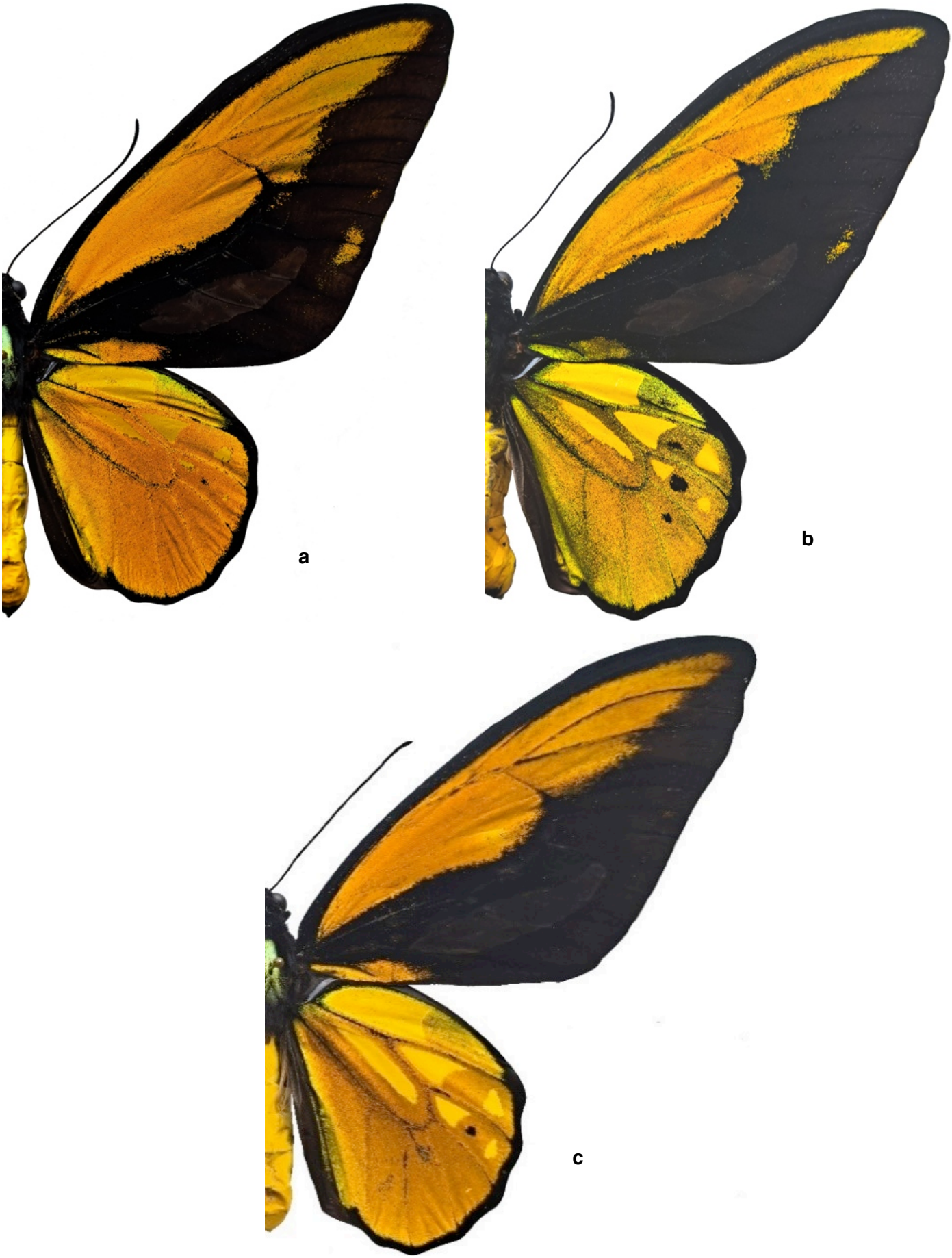

Fig. **37a-c**. *Ornithoptera* (*O*.) *c*. *croesus* f. loc. *laantoni* **nov**. paratypes ♂, Muari Island, Moluccas, Indonesia, dorsal face. Wings with metallic green coloration less extensive than in the holotype.

a. (wingspan 14.0 cm). **b**. (wingspan 14.5 cm). **c**. (wingspan 14.5cm).

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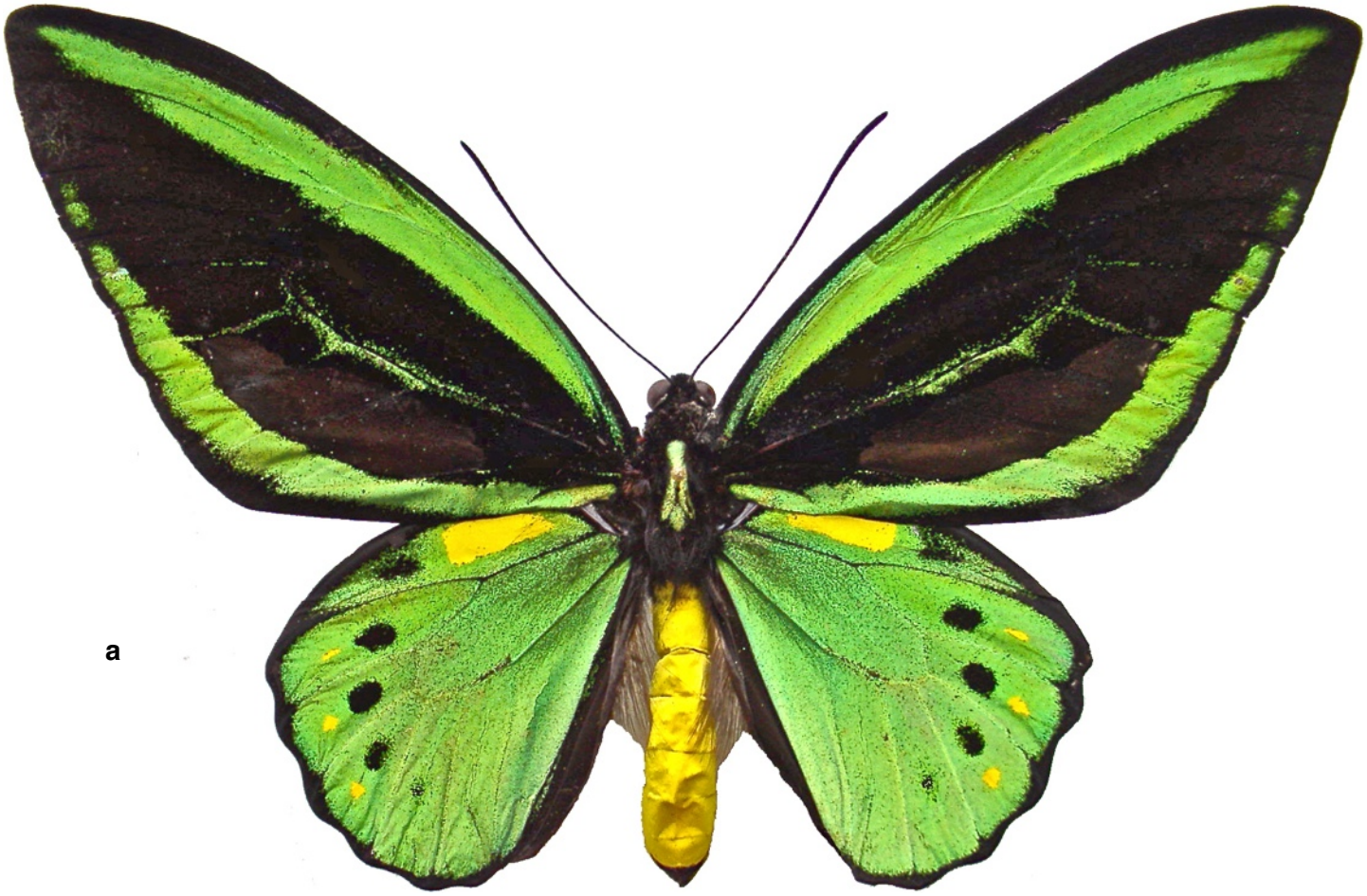
Fig. **38-39**. *Ornithoptera* (*O*.) *c*. *croesus* f. loc. *laantoni* **nov**. typical paratype ♀ (wingspan 16.0 cm), Muari Island, Moluccas, Indonesia. **38**. Dorsal face. **39**. Ventral face.

Fig. **40a-b**. *Ornithoptera* (*O.*) *c*. *croesus* f. loc. *laantoni* **nov**. paratype ♀ (wingspan 16.5 cm), Muari Island, Moluccas, Indonesia. **a**. Fewer pale patches, dorsal face. **b**. More numerous visible, ventral face.

Fig. **41a-b**. *Ornithoptera* (*O.*) *c*. *croesus* f. loc. *laantoni* **nov**. paratype ♀ (wingspan 17.0 cm), Muari Island, Moluccas, Indonesia.
a. More numerous pale patches, dorsal face. **b**. Ventral face.

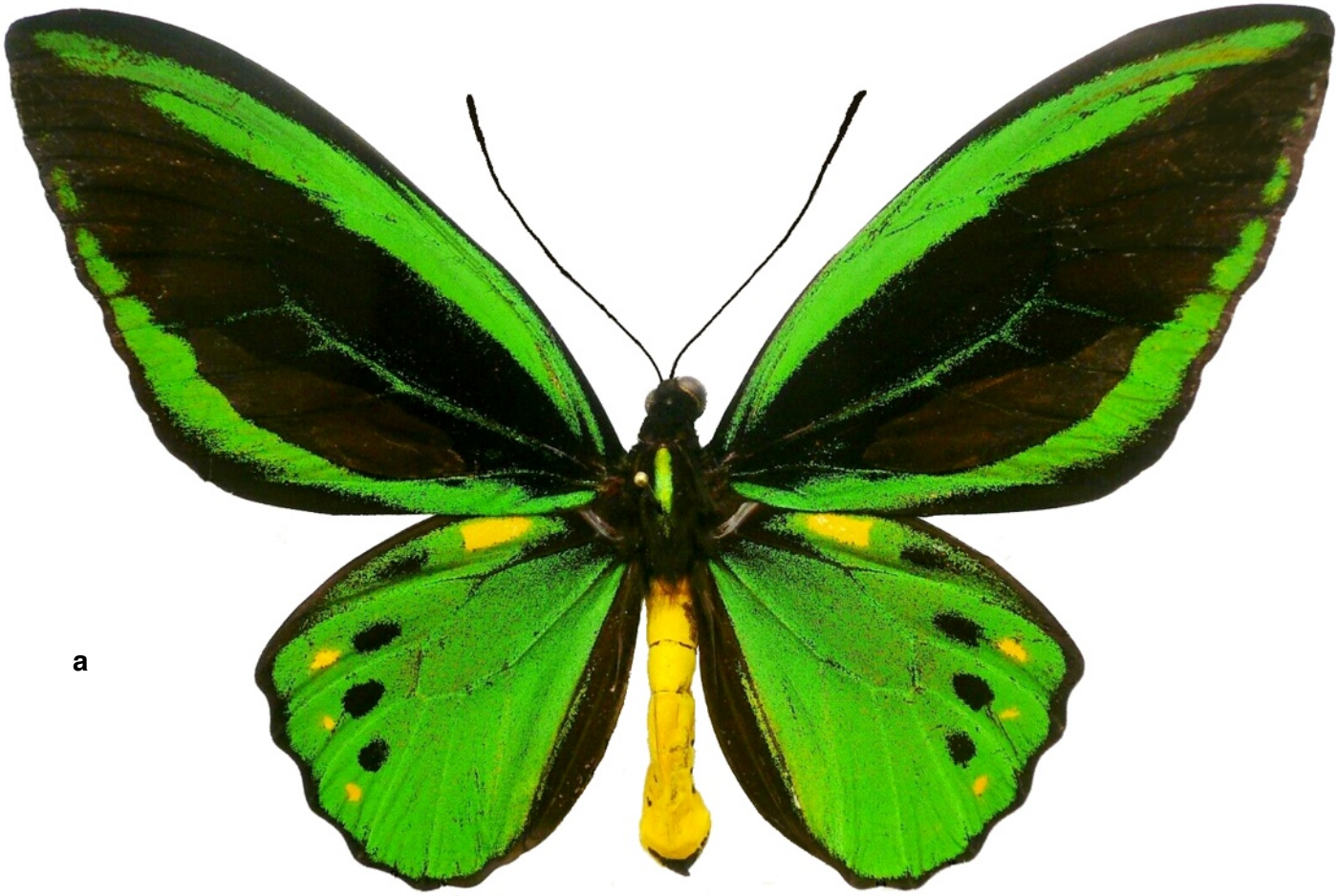


a

b

Fig. **43a-b**. *O*. (*O*.) *priamus hecuba* Röber, 1891, ♂.
a. Dorsal face. **b**. Ventral face.

a



b

Fig. **44a-b**. *O*. (*O*.) *priamus hecuba* f. loc. *albireo* ♂.

a. Dorsal face. **b**. Ventrale face.

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46

Fig. **45-46**. *Ornithoptera* (*O.*) *priamus hecuba* f. loc. *watubelaensis* **nov**. holotype ♂ (wingspan 13.5 cm), Watubela Island, Moluccas, Indonesia. **45**. Dorsal face. **46**. Ventral face.

Fig. **47a-b**. *Ornithoptera* (*O.*) *priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♂ (wingspan 12.0 cm), Watubela Island, Moluccas, Indonesia. Small golden spot in costal space, four larger black subdiscal spots.

a. Dorsal face. **b**. Ventral face.

Fig. **48a-b**. *Ornithoptera* (*O.*) *priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♂ (wingspan 13.0 cm), Watubela Island, Moluccas, Indonesia. Minimal golden basal spot, three smaller subdiscal black spots.

a. Dorsal face. **b**. Ventral face.

Fig. **49a-b**. *Ornithoptera* (*O.*) *priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♂ (wingspan 12.8 cm), Watubela Island, Moluccas, Indonesia. Larger golden spot in costal space, four small black subdiscal spots and two tiny golden spots.

a. Dorsal face. **b**. Ventral face.

Fig. **50a-b**. *Ornithoptera* (*O.*) *priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♂ (wingspan 14.0 cm), Watubela Island, Moluccas, Indonesia. Largest golden spot in costal space, three subdiscal black spots as large as that in Fig. 47 and a small subapical golden streak in space 6.

a. Dorsal face. **b**. Ventral face.

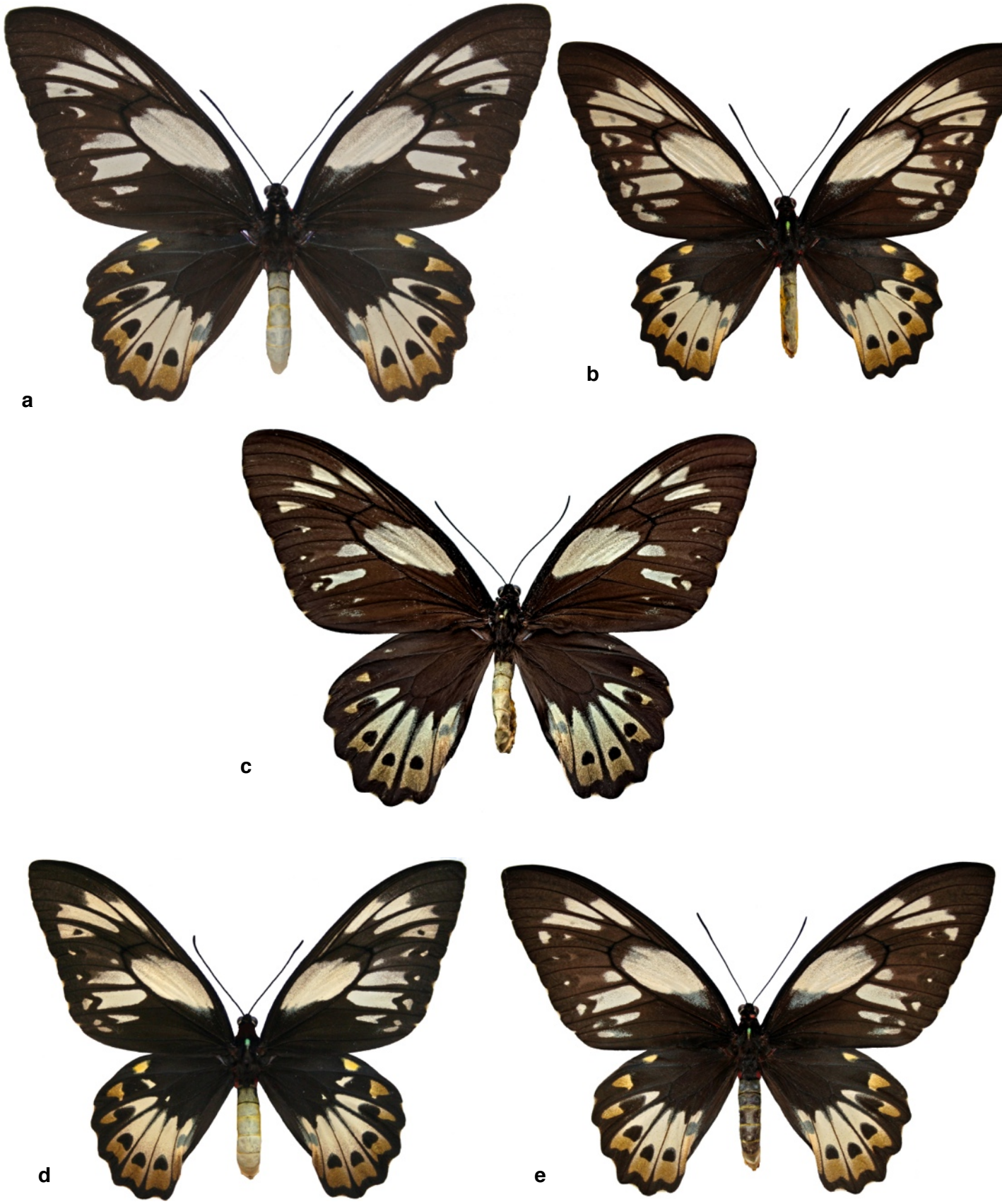

Fig. **51a-e**. *O. priamus hecuba*.

a. f. loc. *hecuba,* Kai Is. **b**. f. loc. *albireo*, Kur Is. **c**. f. loc. *watubelaensis* **nov**., Watubela Is. **d**. f. loc. *albireo*, Tayandu Is. **e**. *O. priamus hecuba*. f. loc. *albireo*, Kasiui Is.

Fig. **53**. *Ornithoptera* (*O.*) *priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♀ (wingspan 16.0 cm), Watubela Island, Moluccas, Indonesia, ventral face.

Fig. **54a-b**. *Ornithoptera* (*O.*) *priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♀ (wingspan 16.0 cm), Watubela Island, Moluccas, Indonesia. Longer yellow veins.

a. Dorsal face. **b**. Ventral face.

Fig. **55a-b**. *Ornithoptera* (*O.*) *priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♀ (wingspan 16. 0 cm), Watubela Island, Moluccas, Indonesia. Shorter yellow veins.

a. Dorsal face. **b**. Ventral face.

Fig. **56a-b**. *Ornithoptera* (*O.*) *priamus hecuba* f. loc. *watubelaensis* **nov**. paratype ♀ (wingspan 17.0 cm), Watubela Island, Moluccas, Indonesia. Shorter yellow veins.

a. Dorsal face. **b**. Ventral face.

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Fig. **58-59**. *Ornithoptera* (*O*.) *priamus poseidon* f. loc. *aureus*, f. *madrinneae* **nov**. holotype ♀ (wingspan 15.8 cm), Arfak Mts., Irian Jaya, Indonesia.

58. Dorsal face. **59**. Ventral face.

Résumé

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Description de nouveaux taxons d'Indonésie : *Troides* (*T.*) *helena usmani* **ssp**. **nov**. et *karamianensis* ♀ **f**. **nov**. île de Karamian ; *T. h. helena dea* ♀ **f**. **nov**. îles de Bali et Java ; *Ornithoptera* (*O.*) *c. croesus* Wallace, 1859 *nobesi* **f**. **loc**. **nov**. îles de Kayoa et *laantoni* **f**. **loc**. **nov**. île de Muari; *O.* (*O.*) *priamus hecuba watubelaensis* **f**. **loc**. **nov**. Watubela Island et *O.* (*O.*) *priamus poseidon* f. loc. *aureus* Parrott, 1987 *madrinneae* ♀ **f**. **nov**. Arfak, Irian Jaya. De plus, descriptions de 2 ♀ inconnues : *O.* (*Schoenbergia*) *paradisea arfakensis* f. loc. *orientalis* Dufek & Schäffler, 2006 et *p. paradisea* f. loc. *kotaseaoe* Dufek & Schäffler, 2006. Enfin, l'île de Kayoa nouvelle localité pour l'espèce *T. criton* Felder, 1860.

Mots-clés. – Lepidoptera, *Troides*, *Ornithoptera*, taxonomie, description, nouvelle sous-espèce, nouvelles formes, nouvelles localités, femelles inconnues, Indonésie.

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Illustration de la couverture :
Île de Misool, Molluques, Indonésie.

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